THE IMPACT OF INFORMATIONAL METHODS AMONG DRINKING
COLLEGE STUDENTS APPLYING THE
HEALTH BELIEF MODEL

By

ELIZABETH ANN BROUGHTON

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF EDUCATION

UNIVERSITY OF FLORIDA

1996

To Helen and Joseph Broughton,

my beloved parents

whose encouragement, support, and faith

have been a constant source of

strength and inspiration.

positive perspective, and a commitment to excellence which have immensely enhanced my professional development.

Finally, I cannot fail to thank the network of family, friends, colleagues, and UF students whose love, encouragement, and patience have kept me sane throughout this project. Thanks also go to some special friends who have provided encouragement and diversion from the stress of graduate school: Mary and George Edmunds, Ken Osfield, Shelli Herman, Mark Farone, Jim Watson, Jim Scott, Chuck Rabaut, and Linda Lewis.

TABLE OF CONTENTS

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Education

THE IMPACT OF INFORMATIONAL METHODS AMONG DRINKING
COLLEGE STUDENTS APPLYING THE
HEALTH BELIEF MODEL

By

Elizabeth Ann Broughton

May, 1996

Chairman: Larry C. Loesch
Major Department: Counselor Education

The purpose of this study was to determine the impact of
three information methods on health beliefs among drinking
college students. Based on the Health Belief Model, an
underlying assumption was that the intervention would result
in altered behavior attributed to changes in one or more of
the following: (a) perceived threat, (b) perceived benefit,
and (c) perceived barrier. A second focus was on how these
variables differed in regard to gender, drinking type,
negative consequences type, frequency of binge drinking,
semester credit hours, and age.

A posttest-only research design, with a 6-week
follow-up, was employed. The Health Belief Questionnaire
(which measured the three health belief dimensions), Michigan
Alcoholism Screening Test (which measured drinking type),

Student Drinking Information Scale (which measured negative behavioral consequences type), and a frequency of binge drinking questionnaire were administered to 267 participants. A set of 3 x 2 x 3 x 3 (treatment x gender x drinking type x negative consequences type) factorial analyses of variance was employed to analyze the quantitative data. A qualitative component also was included to examine subjective reactions to the treatments.

Few statistically significant results were found. There were no significant differences across treatments methods immediately following treatment or at follow-up. For perceived threat, there was a significant gender difference at both times of assessment, a significant interaction among gender, drinking type, and negative consequences type, and a significant difference in perceived threat at times of assessment. For perceived benefit, the only significant difference was for gender immediately following treatment. For perceived barrier, there was a significant difference for negative consequences type immediately following treatment. At follow-up, there was a significant difference for drinking type. The results supported increasing evidence that gender differences in drinking behaviors are lessening. The results also supported previous findings of heavy drinking by college students in fraternities and sororities.

Conclusions included that none of the three informational methods had a significant effect on the three

dimensions of the Health Belief Model. Questions were raised in regard to the appropriateness of using the Health Belief Model as a theoretical model for college alcohol education programs.

INTRODUCTION

Drinking games such as bizz-buzz, fuzzy duck, cardinal puff, thumper, quarters, and funnels on college campuses are centuries old. In fact, some historians trace collegiate alcohol consumption to the Greco-Roman era when students gathered with the masters for "spirits" and discussion (Goodale, 1986). In ancient Greece, a "master of drinking" (symposiarch) was chosen to maintain order, arrange the correct proportion of wine and water, and set the number of cups to be consumed (Garland, 1982). Not to be surpassed, Roman mythology accounted for excessive drinking through acts of the god of wine, Bacchus. Occurrences of similar drinking escapades in the United States originated in the early 18th and 19th centuries when students rebelled against the harsh academic existence (Horowitz, 1987). However, although historical precedents exist for drinking games or contests, their number, variety, and frequency appear to have increased recently, with some studies currently reporting over 65 drinking "games" (Douglas, 1987). Current college drinking games are described as "sporting events" which increase the participants' intoxication (Douglas, 1987). Their popularity

is immense, even though their outcomes are deleterious at best and devastating at worst. Thus, confronting deeply imbedded campus values presents a significant health challenge for higher education personnel in preventing collegiate alcohol abuse because drinking is so universally accepted.

<div align="center">Overview</div>

For centuries, campuses tolerated abusive drinking. Thus, college alcohol use and abuse enjoyed "a long history of public acceptance and public consumption from faculty sherry hours to fraternity parties" (Boyer, 1990, p. 38). Prior to 1960, few institutions focused on college drinking as a problem. More recently, however, some have argued that college drinking is a major problem that should be addressed but is surrounded by a "general conspiracy of silence" (Sanford, 1967, p. 126). Several studies of college student drinking (i.e., alcohol use and abuse) indicated that the college student population accounted for a higher number of drinkers than any other population subgroup in the United States (Blane 1984; Gonzalez, 1982). Approximately 80% to 95% of college students drink (Blane, 1984) compared to about 70% of the general population (NIAAA, 1987). More recently, surveys indicated that 90% of undergraduates used alcohol sometime in the previous year and 75% in the previous month (NIDA, 1990).

Equally alarming is the disproportionate share of alcohol-related problems reported on college campuses. Problems related to alcohol use and abuse involve a wide range of negative consequences. Surveys indicated alcohol use and abuse contributed to absences from classes, altercations with police, social criticism from peers, campus violence, sexual assault, property damage, low grades, job loss, and, not so infrequently, death (Engs, 1977; Upcraft, 1994; Wechsler & McFadden, 1979). Some institutions also reported that as much as 80% of the campus vandalism is related to alcohol use and abuse (Gadaleto & Anderson, 1982).

Problem drinkers in college also are more likely to engage in problematic and deviant behavior than moderate drinkers (Jessor & Jessor, 1976) and more likely to experience negative consequences (Seay & Beck, 1984). Berkowitz and Perkins (1986) calculated that 20% to 25% of students have drinking problems. Characteristics of college problem drinkers typically are defined by eight factors: (a) heavy consumption, (b) frequent intoxication, (c) self-identified problem drinking, (d) negative consequences of drinking, (e) problem-prone personality, (f) family and peer environments, and (g) later life problem drinking (Berkowitz & Perkins, 1986). Seay and Beck (1984) utilized the Michigan Alcoholism Screening Test (MAST), an assessment instrument designed to detect alcoholism, and found that 25% of the students studied were classified as having drinking problems

and 7% were classified as alcoholics. However, several studies also noted that problem drinkers were more knowledgeable about laws and effects of alcohol on the body and least likely to attend alcohol education programs (Seay & Beck, 1984; Williams & Knox, 1987). Tragically, there also is some supportive evidence that early problem college drinking can lead to more serious problem drinking later in life (Donovan, Jessor, & Jessor, 1983; Fillmore, 1974).

Although there has been significant progress and research regarding college alcohol use and abuse, only in the last 20 years have institutions of higher education focused attention on alcohol use and abuse educational (prevention) programming for college students. Higher education personnel have largely applied the leadership in educational programming efforts on college alcohol use and abuse (Sandeen, 1988). The first noteworthy evaluative approach to student drinking occurred in 1975 in the National Institute on Alcoholism and Alcohol Abuse (NIAAA) University 50 + 12 Project. Researchers in this federal study noted that only 15% of the participating project institutions reported an alcohol education program. It also stated the need to focus on college student alcohol use and abuse educational efforts (Hewitt, 1977). Since this NIAAA project's inception, changes in federal laws, media campaigns, and grassroots community advocacy programs significantly impacted campus alcohol education programs such

that, 15 years later, 90% of higher education institutions reported conducting alcohol use and abuse programs (Boyer, 1990). However, regardless of the plethora of research data and interest, little empirical research exists to support successful alcohol education programming efforts.

Most research on college alcohol use and abuse is quantitative and focused on student drinking patterns (e.g., consumption rates, quantity, and frequency of use), attitudes, knowledge, motivations, and negative behavior consequences (e.g., Berkowitz & Perkins, 1986; Engs, 1977; Gonzalez, 1982; Ratliff & Burkhart, 1984). Other variables typically examined in connection with college students' drinking include gender, age, group affiliation, grade point average, religion, ethnicity, motivation, and personality factors (Klein, 1989; Saltz & Elandt, 1986; Weschsler & McFadden, 1979).

For over two decades, the predominant theoretical model used in college and university alcohol education programs was the "knowledge-attitude-behavior change model" (K-A-B). This model suggested that by changing knowledge, attitudes would change, and then behaviors. However, several research studies (e.g., Andrews, 1987; Chen & Bosch, 1987; Gonzalez, 1982) concluded that changes often occur in knowledge and attitudes but not in behavior. Goodstadt (1978) and Goodstadt and Caleekal-John (1984) evaluated K-A-B research and concluded that several of the K-A-B research designs were

weak and that knowledge changes alone had little associated behavioral impact. Similarly, Liljestrand (1993) summarized 65 reports, dated 1986 through 1990, that strongly criticized the existing K-A-B research and the simple measuring of consumption rates.

Some researchers have argued that college alcohol education programs are conceptualized in an atheoretical manner, and, in turn, they demonstrated little effectiveness due to a lack of theoretical framework (Gilchrist, 1994; Gonzalez 1989a, 1994a, 1994b; Saltz & Elandt, 1986). Therefore, it is not surprising that many campus alcohol education programs provide a "hodge-podge" of activities. During the 1970s, campus alcohol education programs focused on alcohol use and abuse classes, alcohol use and abuse information, training peer health educators to provide outreach to the student community, media campaigns, workshops, and symposiums (Claydon & Johnson, 1983). Kraft (1977) identified "successful" programs as having the following elements: (a) key personnel with professional training, (b) interest and responsibilities for alcohol use and abuse education, (c) commitment to health education, and (d) adequate funding for the program. However, Gonzalez (1994a) stated that such programs also should require knowledge of human learning theories, communication strategies, environmental design methods, leadership and

program development expertise, and addiction dependency
knowledge.

Many alcohol education programs currently have broad and
ill-defined goals (Gonzalez, 1994a) such as "to promote a
campus environment that is conducive to responsible alcohol
use and the discouragement of irresponsible use" (Gonzalez,
1982, p. 3). Most evaluations of program goals have focused
on alcohol use and abuse reductions in regard to frequency,
quantity, and negative consequences, thus providing little
information on the effectiveness of programming efforts.

Interestingly, even with overly general goals and
activities, campus alcohol education programs also have
examined program strategies in order to reach college
students who drink. Klein (1989) found that students are
more willing to seek assistance from three available
resources: (a) alcohol counselors, (b) printed information,
and (c) friends. He also concluded that disseminating
alcohol use and abuse information by mail was an effective
means to educate students. Moreover, McCarty, Poore, Mills,
and Morrison (1983) used a direct mail approach designed to
increase program participation, knowledge, and reduce
drinking and driving and found direct mail to be an effective
educational technique. Contrary to reported effectiveness of
direct mail educational efforts, however, Palmer, Gehring,
and Guthrie (1992) concluded that direct mailing of
information was not an effective approach for alcohol use and

abuse education among college students. Therefore,
evaluation of written information as a means to educate
college drinking students is inconclusive.

Other program strategies designed for campus alcohol
education programs have examined communication styles such as
fear appeal (Fritzen & Mazer, 1975; Stainback & Rogers,
1983), an alcoholic or nonalcoholic presenter (Fritzen &
Mazer, 1975), source expertise (Stainback & Rogers, 1983),
physical attractiveness (Maddux & Rogers, 1980), or the
noxiousness of a threatened event (Rogers & Mewborn, 1976) in
changing drinking behaviors and other health behaviors. As
to the most effective communication style, mixed results have
been indicated.

There also is controversy as to whether an alcohol
education program should be focused on the general college
student population or an at-risk population (Blane, 1976;
1984). Blane (1976) stated that alcoholism treatment
personnel are more interested in at-risk programs, while
educators are involved with general (college student)
population approaches. Later, Blane (1984) recommended that
campus alcohol education programs focus on at-risk drinking
college students. Currently, little empirical evidence
supports either approach. However, certainly an at-risk
population worthy of study on a college campus are members of
Greek-letter organizations because fraternity and sorority

members are the heaviest, most frequent problem drinkers among students (Goodwin, 1989; Tampke, 1990).

Flay and Sobel (1983) summarized five historical approaches in alcohol and drug education: (a) moral, (b) fear, (c) factual, (d) affective, and (e) social skills. These different approaches have been used in classrooms where, generally, most campus alcohol education programs have been conducted and evaluated. They have typically been focused upon (a) values clarification exercises (Engs, 1977), (b) developing or increasing coping skills (Botvin, 1983), (c) classroom instruction or lectures (Dennison, Prevat, & Affleck, 1977), (d) improving decision-making skills (Kraft, 1979), (e) providing field experiences (Dennison, 1977; Rozelle, 1980), and (f) utilizing peer facilitators (Gonzalez, 1982; 1989a; Rozelle & Gonzalez, 1979) to change college students' drinking behaviors. However, most of these approaches were conducted as limited classroom instruction and, therefore, have little practicality for broad-based campus alcohol education programs.

Gonzalez (1989a) indicated that a strong alcohol education approach should integrate the health belief model, social learning theory, and problem behavior theory. Gonzalez (1994a) also wrote that an educational-preventive message for behavior change in students would include three requirements: (a) that alcohol abuse is a serious problem, (b) that students are personally susceptible to the problem,

and (c) that students have alternative options to reduce the risk of being affected by an alcohol problem. These three components are similar to key health belief model variables. Without a meaningful theory and three essential message components, students do not have the skills to resist the social and environmental pressures to drink (Gonzalez, 1994a). Therefore, reducing health-compromising behavior among drinking college students and encouraging healthy beliefs and behaviors with key educational messages could have a positive impact on immediate and long-term health behavior for college students.

<u>Theoretical Framework</u>

Theories abound in the alcohol and drug abuse field. For example, one monograph documented over 43 theories on drug abuse (Lettieri, Sayers, & Pearson, 1980). Prior to and during the 1970s, agencies for the federal government could not formally agree on a definitive approach. For example, the National Institute on Alcohol Abuse and Alcoholism (NIAAA, 1977) focused on the Public Health Model, whereas the National Institute on Drug Abuse (NIDA, 1978) examined drug abuse through a Continuum of Care Model. In 1987, these two institutes joined together as the Office for Substance Abuse Prevention (OSAP), and the leadership currently advocates the Public Health Model (Prevention Pipeline, 1988).

Other theoretical approaches involved in alcohol and drug abuse research include theories such as the health belief model, systems approach, sociocultural model, distribution of consumption model, value expectancy theory, and social learning theory (Bandura, 1977; Conyne, 1984; Kraft, 1977; Nirenburg & Miller, 1984; Rosenstock, 1974). However, Gonzalez (1994b) stated that rarely have these theoretical approaches been successfully applied to alcohol and drug education programs on college campuses.

The approach used in this study was to examine health beliefs and drinking behaviors among drinking college students using the health belief model (HBM). This influential and widely regarded psychosocial model has been used to explain health-related behavior for three decades (Rosenstock, 1990). Kasl and Cobb (cited in Haefner & Kirscht, 1970) believed that the HBM is the best explanation for health behavior undertaken by persons with or without symptoms. The model has been demonstrated to have effectiveness for treatment of obesity (Becker, Maiman, Kirscht, Haefner, & Drachman, 1977), AIDS education (Manning, Barenberg, Gallese, & Rice, 1989), modification of drinking and driving behaviors (Beck, 1981), and alcohol education programs (Kleinot & Rogers, 1982). Of all the health-related behavior models, the HBM has received the most thorough research attention, having been applied to diverse

populations, settings, health conditions, and recommended behaviors (Becker, 1990).

Rosenstock, Hochbaum, Leventhal, and Kegiles formulated the HBM while working with the U.S. Public Health Services. According to the original HBM, the main HBM components are (a) perceived susceptibility, (b) perceived severity, and (c) perceived benefits and barriers (Rosenstock, 1974). Janz and Becker (1984) summarized 46 HBM-related research studies and found "perceived barriers to be the most powerful of the HBM dimensions across the studies" (p. 41). Since the original conceptualization, some researchers have combined perceived susceptibility and severity as perceived threat (Rosenstock, 1990).

The model also included a self-efficacy concept from Bandura's social learning theory to explain better the concept of perceived benefits (Rosenstock, 1990). From this model, it is believed that individuals take action to ward off ill health if they regard themselves as susceptible to the condition, believe the condition has potentially serious consequences, and believe a course of action is available to reduce the condition, possibly motivated by a "cue."

> Thus, for behavior change to succeed, people must (as the original HBM theorizes) feel threatened by their current behavioral patterns (perceived susceptibility and severity) and believe that change of a specific kind will be beneficial by resulting in a value outcome at acceptable cost, but they must also feel competent (self-efficacious) to implement change. (Rosenstock, 1990, p. 47)

In addition, other variables noted within the HBM include a "cue to action." A "cue to action," internal or external, is thought to motivate a concern for health and/or initiate health behavior change (Rosenstock, 1974).

Because drinking college students engage in risky drinking behaviors, implementation of the HBM is deemed a valuable method in establishing a theory-based approach for alcohol education programs. First, according to this model, college students would need to believe that a perceived threat would affect their health and cause a health problem. Second, the perceived benefit of avoiding the health problem would motivate them to take a particular action. Finally, by choosing an alternative behavior, college students would avoid developing the health problem. Informational methods with educational messages involving the HBM acting as a "cue to action," therefore, have the potential to heighten perceived susceptibility and severity of the health problems of alcohol use and abuse and enhance the belief in the benefits and barriers of taking action in changing risky drinking behaviors.

Statement of Problem

From the review of the literature, effective theoretical models for campus alcohol education programs are lacking but are a necessity. Enormous amounts of funds, research studies, federal grants, and campus-based efforts are

invested in preventing college alcohol use and abuse. Even
college presidents have recognized the detrimental impact
alcohol use and abuse contributes to the quality of campus
life by rating it as one of the top five campus concerns
(Boyer, 1990). Adding pressure to higher education, federal
legislation was enacted to address substance abuse by college
students and faculty. The Drug Free Schools and Communities
Act Amendments of 1989 (PL. 101-226) and Drug Free Schools
and Campuses Final Regulations issued in 1990 required an
institution to notify students and employees that a campus
program was implemented "to prevent the unlawful possession,
use or distribution of illicit drugs and alcohol by students
and employees on institutional property or at any of its
activities" (p. 33583). An institution is expected to comply
with provisions of PL. 101-226 and Drug Free Schools and
Campuses Final Regulations to receive federal funds including
guaranteed student loans or funds for research. However, it
is ironic that even alcohol education programs such as these
lack guiding models.

Traditionally, alcohol education methods for confronting
campus drinking problems were designed to make students more
aware of the dangers of alcohol use and abuse. According to
the most recent campus alcohol report (Commission on
Substance Abuse at Colleges and Universities, 1994), most
college policies and programs are organized with one or more
of three major goals: (a) complete abstinence or

elimination, (b) responsible moderation, or (c) reducing consequences. However, regardless of policies and programs, college students with problem drinking know as much about the dangers of alcohol as nonabusers, and still only 1% indicated trouble with their alcohol consumption when, in fact, 32% were considered in trouble (Seay & Beck, 1984). Posavac (1993) theorized that campus program personnel conveyed one intended message, whereas students supported a different definition of excessive drinking or drinking problems.

Some studies have researched informational methods, such as fear appeals and message style, in middle and secondary schools (e.g., Stainback & Rogers, 1983). The use of fear appeal messages was found to have a positive effect on changing attitudes about drinking (Fritzen & Mazer, 1975), but not over an extended period of time. Therefore, conveying the intended communication to drinking college students is a challenging problem but one which could have a significant impact in changing health beliefs and behaviors.

A possible impediment to utilizing the HBM as an informational method is that most students do not perceive themselves as having a problem with drinking. Perkins and Berkowitz (1986) asserted that students may be influenced "more by what they *think* their peers do rather than by what peers *actually* do" (p. 46). Their study found that students perceive drinking as occurring more than it actually is, as indicated in survey use patterns. Some researchers also

suggested that college students do not understand the effects of alcohol (Posavac, 1993). For example, Martens, Ross, and Mundt (1991) concluded that college students underestimated the time needed for the body to remove alcohol from the blood before driving safely and overestimated the number of drinks they may consume safely before driving. Other researchers also demonstrated that a majority of students overestimated the amount of drinking by fellow students relative to their own drinking (Baer, Stacy, & Larimer, 1991; Burrell, 1992). Unfortunately, students with the most "positive" attitudes toward drinking are typically the heaviest drinkers (Ratliff & Burkhart, 1984).

A review of the literature on the effectiveness of utilizing the HBM with alcohol education programs revealed mixed results. Kleinot and Rogers (1982) used protection motivation theory based on persuasive communication, which some researchers stated is similar to the HBM (Rosenstock, 1990), to change drinking college students' behavioral intentions to drink moderately. They found that high noxiousness, high vulnerability, and high response efficacy messages were associated with moderate drinking levels. Conflicting results were found when Portnoy (1980) incorporated factors of the HBM and persuasive communication strategies. He found expected changes in knowledge and attitudes; however, he also found the HBM to have little predictive value in changing drinking and driving behaviors.

Further, Bardsley and Beckman (1988) examined the HBM and entry into alcoholism treatment and found only perceived severity as a positive health factor to enter treatment. Unfortunately, the one factor related to all three studies was the lack of a standardized HBM measurement.

Development of healthy drinking behaviors among college students is a challenging and motivational goal for campus alcohol education programs. However, presumably, informational methods developed with the HBM messages should assist effectiveness in such programs. According to Gonzalez (1994a), a specific HBM message should motivate college drinking students to protect themselves from alcohol abuse problems.

Support for the Potential Effectiveness of Treatment

Health education programs have been developed to promote healthy behaviors despite the number of individuals who do not practice or engage in healthy lifestyles. Of practical concern, therefore, is to use health communication to motivate individuals (college students) to make positive changes.

Health communication has received its greatest support from the study of persuasive effects. According to McGuire (1970), the persuasive process involves several communication processes: (a) source variables which are (1) credibility (expert versus trustworthiness), (2) attractiveness, and (3)

power; (b) message factors which are (1) type of appeal, (2) inclusion or omission, and (3) order of presentation; (c) channel factors which are (1) direct experience, (2) modality, and (3) mass-media versus face to face influence; (d) receiver factors which are (1) active or passive, (2) demographic variables, and (3) personality factors; and (e) destination factors which are (1) general effects, (2) immediate versus delayed, and (3) attitude or behavioral change.

A vast amount of this research regarding the effects of persuasive communication is in the area of attitude change through fear appeals (Rogers & Mewborn, 1976; Schelegel, 1977-78). Rogers and Mewborn (1976) and Rogers (1975) argued that the important factors for fear appeal were "(a) noxiousness of the event, (b) the conditional probability that the events will occur provided no adaptive activity is performed, and (c) the effectiveness of a coping response that might avert the noxious event" (p. 55). Interestingly, this persuasive effect is similar to the health belief model.

In the alcohol and drug education field, early communication approaches to change health behaviors involved the "reefer madness" approach. It then changed to the information approach, and currently the emphasis is to develop an approach with a theory. In the alcohol and drug education field, numerous studies have examined treatment techniques to develop effective educational programs with

treatment sessions varying from one 20-minute information session (Stainback & Rogers, 1983) to 60-minute information sessions for 10 weeks (Swisher, Warner, & Herr, 1972). Lewis, Gossett, and Phillips (1972) examined day-long small group educational meetings with high school seniors with a control sample. They conducted premeasure assessment 3 days before the program and 2 weeks later. The researchers reported no significant changes in current drug use. Swisher and Crawford (1971) analyzed four different 1-hour programs with high school seniors and found changes in knowledge but no changes in attitudes. Additionally many of these researchers utilized various treatment condition formats such as different forms of counseling groups (Swisher, Warner, Spence, & Upcraft, 1973) and different kinds of information and educational methods (Hewitt & Nutter, 1979). Most researchers relied on lectures, counseling groups, discussion groups, and various expertise. These various studies did not include a theory in their treatment conditions or written messages.

Rogers and Mewborn (1976) used written messages to examine three health problems (cigarette smoking, driving safety, and venereal disease) utilizing three persuasive effects: (a) noxiousness of threatened event, (b) probability of occurrence, and (c) changes in behavior. In this study, participants first viewed short films for noxiousness (low or high) and then read written information

arguing the probability of being exposed to the threatened event. The results found significant changes from noxiousness of threatened event but no significance in the other two areas.

Other written message research in support of effectiveness of treatment has been observed in the advertising and communication fields. In one study, two advertising researchers requested that participants read a brief booklet containing an experimental advertisement and noted source expertise, time of source identification, and advertising effectiveness (Homer & Kahle, 1990). The researchers concluded that "under certain conditions (i.e, print media)" can have significant results (Homer & Kahle, 1990, p. 37). Moreover, Baesler and Burgoon (1994) utilized brief written messages pertaining to juvenile delinquents to examine whether evidence type (story or statistical) with vividness (vivid or not vivid) at three time intervals (immediate, 48 hours later or 1-week delay) affected changes in belief. Other researchers have used brief written messages on the importance of eating breakfast to examine motivational significance on psychological situations (Tykocinski, Higgins, & Chaiken, 1994).

For this study, a written message was selected over audio, video, or live presentations for three reasons. The first reason was limiting variables of different presentations. Cost-effectiveness was the second reason

considering using written messages for adopting in campus alcohol education programs. Lastly, written messages have been used infrequently in the alcohol and drug field.

<div align="center">Need for the Study</div>

The current rate of binge drinking on college campuses remains almost identical to a decade ago (Wechsler, Isaac, Grodstein, & Sellers, 1994a). In 1991, 41% of college students were defined as binge drinkers compared to 44% in 1980 (Wechsler et al. 1994a). More disturbingly, the Surgeon General estimated that college students spend $4.2 billion a year on alcoholic beverages (Eigen, 1991). As stated, there is no doubt that there is a need to improve the effectiveness of college alcohol education programs with a coherent theory. The HBM should be a suitable theory to adapt to a broad-based campus alcohol education program.

Colleges and universities are unique environments that could influence current and future health beliefs and behavior for a large segment of the population. A unique opportunity exists, therefore, to affect the future health of young people. Affecting health beliefs, which relate to healthy lifestyles, should have a significant impact on college students who drink excessively.

There is an increasing demand for accountability for campus programs (Commission on Substance Abuse on Colleges and Universities, 1994). Therefore, this study advanced

research knowledge on the effectiveness of information methods for changing health beliefs among drinking college students. Knowledge gained could initiate further research by using the results of the treatment with diverse and at-risk populations of drinking college students.

This study also has implications for higher education programming. One implication is that the results could provide a theory-based approach. A second is that the results could provide higher education personnel a cost-effective, broad-based method to educate large college populations. A third is that higher education personnel could have an effective approach to evaluate campus alcohol education programs. Moreover, the results could assist in reducing risky health behaviors among college students.

For practitioners in campus alcohol education programs, this study could impact program planning, implementation, and evaluation. If no differences are found among treatment groups, then practitioners would need to continue to explore other approaches for campus alcohol education programs. However, if treatment differences were found, then practitioners would have an effective model to change health behaviors, especially among at-risk drinking college students.

In summary, the results of this study could provide valuable knowledge to advance theory, research, training and practice in the area of campus alcohol education programs.

The results could impact alcohol educators and higher
education personnel training and guide program direction for
practitioners in campus alcohol education programs.

<div align="center">Purpose of the Study</div>

The purpose of this study was to examine the impact of
three methods of written alcohol information presentation,
one based on the HBM, as compared to general alcohol
information and general health information, in regards to
drinking college students' health beliefs. Expanding on
previous research on communication styles, this study was
designed to determine whether the two different methods,
written health-threat (fear) alcohol information or written
general alcohol information, had more effect on the three
factors of the HBM than does written general health
information. Perceived threat refers to the perceived
susceptibility and perceived severity of contracting a health
condition; perceived benefits refer to the perceived efficacy
to reduce risks; and perceived barriers refer to inhibitions
to perform positive health behaviors. These HBM dimensions
were measured by the Health Belief Questionnaire (HBQ). Also
assessed were college drinking behaviors and consequences as
measured by the MAST, a problem checklist of negative
drinking consequences, and frequency of binge drinking.
Differences between college students who are nonproblem
drinkers, problem drinkers, and alcoholics also were

examined. A qualitative component was included to examine
subjective reactions to the treatment.

<u>Rationale for the Approach to the Study</u>

Campus alcohol education programs have received
considerable criticism for lack of theoretical bases as well
as research inadequacies (Gonzalez, 1994b; Goodstadt &
Caleekal-John, 1984; Liljestrand, 1993; Perkins & Berkowitz,
1986; Saltz & Elandt, 1986). Reviewers of outcome studies on
the effectiveness of alcohol and drug education programs
concluded that many of these programs were ineffective
(Kinder, Pape, & Walfish, 1980). Among primary reasons
offered for the ineffectiveness were the lack of consensus on
goals for programs and inadequate evaluation of programs due
to methodological or analytic deficiencies (Kinder et al.
1980). This study attempted to reduce these limitations by
utilizing an accepted theoretical base which has been found
to produce significant adherence to health recommendations
(Janz & Becker, 1984).

This study employed a posttest only control group
(experimental) design with a 6-week follow-up. Only current
drinking college students were used. Nondrinkers were
excluded. The independent variables were treatment condition
(written health-threat alcohol information, written general
alcohol information, or written general health information);
classification as either a problem or nonproblem drinker or

alcoholic; level of negative drinking consequences as low, moderate, and high; engagement in binge drinking within the previous 2 weeks; gender; age; semester credit hours; and time of assessment. The dependent variables are the three factors measured by the HBQ: perceived threat, perceived benefit, and perceived barriers.

The posttest-only design was chosen to assure that differences in the independent variable are accounted for by the observed differences in the data (Huck, Cormier, & Bounds, 1974). Threats to internal validity are controlled by the design through random assignment of subjects. Random assignment provides for control of threats to internal validity for selection, history, maturation, and statistical regression (Huck et al., 1974). External validity was enhanced by accurately describing measurement variables and selection of representative subjects.

The treatment was validated by a panel of experts to assure proper representation of the informational material. Three to four alcohol/health experts outside the Counselor Education Department were selected for an objective opinion. Follow-up testing was conducted 6 weeks after treatment. Finally, qualitative data were collected to clarify treatment outcomes and to provide a "richer" understanding of the treatment.

In most campus alcohol education programs, descriptive alcohol surveys are the commonly used measurement instruments

to evaluate changes in college student drinking behavior. However, these descriptive measurements have provided little useful information as to the effectiveness of a campus alcohol education program. Some researchers have argued that the lack of standardized evaluation methods explains the lack of or no change in college student drinking behavior as a result of an alcohol education program (Goodstadt & Caleekal-John, 1984). Therefore, the standardized MAST was used to measure problem drinking behaviors and consequences along with a standard negative consequences scale developed by Gonzalez (1980).

This study employed measurement instruments selected for their utility and reported validity. The HBQ was chosen for its ability to assess the three dimensions of the HBM. For measuring problem drinking behaviors and consequences, the MAST, developed by Selzer (1971) and empirically tested on college students, was used (Favazza & Cannell, 1977; Seay & Beck, 1984). The measurement of negative consequences developed by Gonzalez (1980) with the SDIS (Student Drinking Information Scale) was used. The measurement for binge drinking was conducted by utilizing methods established by several researchers (Wechsler & Isaac, 1992; Wechsler et al. 1994a; Wechsler & McFadden, 1979). The validity of self-reports of alcohol use have been established through correlations with other known measures (Midanik, 1982; Polick, 1982) and over time (Bailey, 1992). Thus, this study

provides the most useful approach to measure effectiveness of communication styles on college student drinking.

<div align="center">Hypotheses</div>

The following hypotheses were evaluated in this study at the .05 level of significance:

Perceived Threat

1.   There is no significant difference in perceived threat immediately following treatment based on type of treatment information received.

   1a.   There is no significant difference by gender in perceived threat immediately following treatment.

   1b.   There is no significant difference by drinking type in perceived threat immediately following treatment.

   1c.   There is no significant difference by negative drinking consequences in perceived threat immediately following treatment.

   1d.   There are no significant perceived threat interactions among type treatment received, gender, drinking type, or negative consequences immediately following treatment.

   1e.   There is no significant relationship between number of semester credit hours completed and perceived threat immediately following treatment.

1f. There is no significant difference in the relationship between age and perceived threat immediately following treatment.

2. There is no significant difference in perceived threat at follow-up based on type of treatment information received.

2a. There is no significant difference by gender in perceived threat at follow-up.

2b. There is no significant difference by drinking type in perceived threat at follow-up.

2c. There is no significant difference by negative drinking consequences in perceived threat at follow-up.

2d. There are no significant perceived threat interactions among type treatment received, gender, drinking type, or negative consequences at follow-up.

2e. There is no significant relationship between number of semester credit hours completed and perceived threat at follow-up.

2f. There is no significant difference in the relationship between age and perceived threat at follow-up.

3. There is no difference in perceived threat between posttest and follow-up.

Perceived Benefit

4.   There is no significant difference in perceived benefit
     immediately following treatment based on type of
     treatment information received.

     4a.   There is no significant difference by gender in
           perceived benefit immediately following treatment.

     4b.   There is no significant difference by drinking type
           in perceived benefit immediately following
           treatment.

     4c.   There is no significant difference by negative
           drinking consequences in perceived benefit
           immediately following treatment.

     4d.   There are no significant perceived benefit
           interactions among type treatment received, gender,
           drinking type, or negative consequences immediately
           following treatment.

     4e.   There is no significant relationship between number
           of semester credit hours completed and perceived
           benefit immediately following treatment.

     4f.   There is no significant difference in the
           relationship between age and perceived benefit
           immediately following treatment.

5.   There is no significant difference in perceived benefit
     at follow-up based on type of treatment information
     received.

5a. There is no significant difference by gender in perceived benefit at follow-up.

5b. There is no significant difference by drinking type in perceived benefit at follow-up.

5c. There is no significant difference by negative drinking consequences in perceived benefit at follow-up.

5d. There are no significant perceived benefit interactions among type treatment received, gender, drinking type, or negative consequences at follow-up.

5e. There is no significant relationship between number of semester credit hours completed and perceived benefit at follow-up.

5f. There is no significant difference in the relationship between age and perceived benefit at follow-up.

6. There is no difference in perceived benefit between posttest and follow-up.

Perceived Barrier

7. There is no significant difference in perceived barrier immediately following treatment based on type of treatment information received.

7a. There is no significant difference by gender in perceived barrier immediately following treatment.

7b. There is no significant difference by drinking type in perceived barrier immediately following treatment.

7c. There is no significant difference by negative drinking consequences in perceived barrier immediately following treatment.

7d. There are no significant perceived barrier interactions among type treatment received, gender, drinking type, or negative consequences immediately following treatment.

7e. There is no significant relationship between number of semester credit hours completed and perceived barrier immediately following treatment.

7f. There is no significant difference in the relationship between age and perceived barrier immediately following treatment.

8. There is no significant difference in perceived barrier at follow-up based on type of treatment information received.

8a. There is no significant difference by gender in perceived barrier at follow-up.

8b. There is no significant difference by drinking type in perceived barrier at follow-up.

8c. There is no significant difference by negative drinking consequences in perceived barrier at follow-up.

8d. There are no significant perceived barrier interactions among type treatment received, gender, drinking type, or negative consequences at follow-up.

8e. There is no significant relationship between number of semester credit hours completed and perceived barrier at follow-up.

8f. There is no significant difference in the relationship between age and perceived barrier at follow-up.

9. There is no difference in perceived barrier between posttest and follow-up.

10. There is no significant association between drinking type and negative consequences scale immediately following treatment.

11. There is no significant association between drinking type and negative consequences scale at follow-up.

12. There is no significant association between drinking type and binge drinker classification immediately following treatment.

13. There is no significant association between drinking type and binge drinker classification at follow-up.

<u>Definition of Terms</u>

For the purposes of this study, the following definitions apply:

<u>Alcoholic</u> is a student who receives a score of 10 or above on the MAST (Seay & Beck, 1984).

<u>Binge drinking/heavy drinking</u> refers to consuming five or more drinks on at least one single occasion (e.g., evening) during the past 2 weeks (Wechsler et al., 1994a).

<u>Campus alcohol education programs</u> are campus educational programs and activities primarily dealing with prevention/education and having a designated full time staff member.

<u>College student</u> refers to students between the ages of 18 and 24 who currently drink and who are enrolled for 3 or more college-level course work credit hours which can be credited toward graduation requirements.

<u>Greek-letter organizations</u> are local chapters which belong to a national social fraternity or sorority.

<u>Health-threat alcohol information</u> is written, persuasive material on alcohol use and abuse focusing on the seriousness of the problem of alcohol abuse, personal susceptibility, and risk for health problems.

<u>General alcohol information</u> is written, general material on alcohol use and abuse.

<u>Health information</u> is written, general health information and statistics pertaining to college students' health.

HBM questionnaire is a measurement developed by Stiles (1987) to assess perceived threat, perceived benefits, and perceived barriers.

MAST refers to the Michigan Alcoholism Screening Test developed by Selzer (1971), a 25-item questionnaire for determining alcohol dependence.

Nonproblem drinker is a student who receives a score of 4 or below on the Michigan Alcoholism Screening Test (Seay & Beck, 1984).

Problem drinker is a student who receives a score between 5 and 9 on the Michigan Alcoholism Screening Test (Seay & Beck, 1984).

Perceived threat is an HBM dimension index referring to subjective perception of the risk of contracting a health condition.

Perceived benefit is an HBM dimension index referring to a perceived efficacy to reduce risks.

Perceived barrier refers to a 12-item scale ranging from 0% through 100%, with a higher score indicating a greater perception of self-efficacy to perform health behaviors (Stiles, 1987).

Overview of the Remainder of the Study

The remainder of this study is organized into four chapters. The second chapter is a review of the literature relevant to the study. Chapter III includes the research

methodology. In Chapter IV, results of the data analyses are presented. Chapter V includes the discussion, implications, limitations, suggestions, and recommendations.

CHAPTER II
REVIEW OF THE RELATED LITERATURE

Alcohol is the most abused drug in America. The use, abuse, and addiction to alcohol seriously affects 10% of American adults and, at a minimum, causes 3 out 100 deaths (NIAAA, 1990). Problems in society in general associated with alcohol use and abuse continue to be one of the leading public health concerns (Johnson, 1992). Students in institutions of higher education are no exception. Surgeon General Novello (1991) stated that "among those students currently in college, between 240,000 and 360,000, eventually will lose their lives due to drinking. This number equals the entire undergraduate student body of the 'Big 10' universities" (p. 2). Eigen (1991) reported that college students were more at risk for substance abuse for several reasons: (a) They consume more alcohol than their non-college peers; (b) they are strongly influenced by their drinking peers; (c) they often drink recklessly and participate in "drinking games"; (d) the alcoholic beverage industry targets promotions and advertising directly at them; and (e) they are vulnerable to health risk factors because of college norms and traditions. According to Eigen (1991),

"the typical college campus is potentially hazardous to the health of its students" (p. 75).

Since their founding, American colleges have reported common incidences regarding college students' drinking. In 1794, a Harvard policy stipulated "that no resident in the college should make use of distilled spirits or mixed drinks such as punch or flip in entertaining other students or strangers, and that no undergraduate should keep by him brandy, rum, or distilled spirituous liquours" (Straus & Bacon, 1953, p. 37). More recently, Moffat (1989), while conducting an anthropological study of campus life, found that "campus life" revolved around the acquisition and consumption of alcohol. From his research, he noted that drinking was college students' favorite "collective activity" (Moffat, 1989, p. 84).

Traditionally, colleges have provided a transitional environment for young adults to move beyond the immediate influence of their families and to explore new activities. The undergraduate experience supposedly leads to competent and complete human beings. "It is one of the most enlightened visions any society has ever collectively endorsed" (Boyer, 1987 p. 1). Yet, the transition into college is associated with increased alcohol consumption for both men and women. Further, a national survey demonstrated that college students generally have a higher alcohol consumption rate than their noncollege counterparts and the

rate is twice as great for heavy drinking among college women versus noncollege aged counterparts (Johnston, O'Malley, & Bachman, 1992). Regardless of campus policies, drinking among college students is a "rite of passage" as well as a major health problem for institutions of higher education.

National research studies have used consumption rates as the standard measurement to record alcohol use and abuse among college students. The first, most extensive research on drinking in college was conducted at the Center of Alcohol Studies at Yale University in 1953. It was found that 74% of the students surveyed consumed alcohol and that 6% of the male drinkers and 1% of the female drinkers manifested problem drinking (Straus & Bacon, 1953). Furthermore, from two other national studies, Hanson (1974, 1977) reported that 85% of students drank. Hanson and Engs (1986) then compared two large samples at two different time periods and noted no significant changes in the percentages of drinkers; however, they did report an increase in problem drinking. More recently, a 1993 national study conducted at 78 institutions and with 58,000 respondents found that 85% of the students drank in the past year (Presley, Meilman, & Lyerla, 1993).

In summary, differences have been reported in consumption rates from national studies to individual campuses. However, most studies have indicated an increase in consumption rates since the Straus and Bacon study in 1953

(Gonzalez, 1986; Hanson;, 1974, 1977; Johnson, 1992; Wechsler
& McFadden, 1979).

<u>Characteristics Related to College Drinking</u>

Several characteristics of college students have been
examined in relationship to alcohol use and abuse. One that
has received considerable attention is gender. In general,
most studies have reported that male students drink more than
female students. For example, decades ago Straus and Bacon
(1953) reported a 16% differential. According to Windham and
Aldridge (cited in Hanson, 1977), the early reasoning given
for the gender difference was that drinking was a male
prerogative, and Preston (cited in Hanson, 1977) noted that
"drinking is often a symbol which differentiates between the
sexes" (Preston, 1964, p. 48). Two decades later, Hanson
(1974) found that the differential percentage was five
percentage points. Four years later, Hanson (1977) found an
equal percentage of male and female drinkers. Although some
researchers have cited gender differences in drinking
patterns (Biber, Hashway, & Annick, 1980; Engs, 1977; Hughes
& Dodder, 1983), most have noted reductions in the gender
differential (Berkowitz & Perkins, 1987; Hanson, 1974, 1977;
Ratliff & Burkhart, 1984). In fact, some researchers have
argued that a gender convergence has occurred with respect to
consumption rates and frequency. However, they also reported
that gender differences remain for drinking motivations,

consequences, and environmental effects (Berkowitz & Perkins, 1986, 1987). More significant is recent research that indicated that 35% of college women reported "getting drunk" in 1993, a figure which more than tripled the 10% noted in 1977 (Commission on Substance Abuse at Colleges and Universities, 1994). Discrepancies in measuring gender differences may be due to insensitive bias in questionnaires (Berkowitz & Perkins, 1986, 1987). Another factor may be biological differences; women are physiologically affected more quickly by drinking than men because they have lower total body water content to dilute the alcohol as well as a significantly diminished capacity for processing alcohol dehydrogenase (which is the primary enzyme involved in the metabolism of alcohol) (NIAAA, 1990).

Other gender differences have been noted in regard to alcoholic beverage consumption and drinking locations. Biber et al. (1980) found that students, both males and females, preferred to drink in large group settings. However, females preferred structured social environments (e.g., clubs, bars, or restaurants) to informal social environments (e.g., resident halls, athletic events, or parks). Biber et al. (1980) and Temple (1986) found that men drank more frequently than women. Male college students also were reported to have more negative consequences due to drinking than females (Temple, 1986; Wechsler & McFadden, 1979).

Age also has been a significant factor in college student drinking. Most research studies report the incidence of drinking increases with each academic year (Friend & Koushki, 1984; Hanson, 1974; Harford, Wechsler, & Rohman, 1983; Hughes & Dodder, 1983; Straus & Bacon, 1953; Wechsler et al., 1994a; Wechsler & McFadden, 1979; Wechsler & Rohman, 1983). Frequent, light drinking increases with year in school for all students and frequent, heavy drinking decreases with year in college for women but not for men (Harford et al., 1983; Wechsler & McFadden, 1979).

There also appears to be an age-related progression for the amount and type of negative consequences experienced. According to Walfish, Wentz, Benzing, Brennan, and Champ (1981), school-related problems were first followed by minor problems in the junior year and followed by more severe problems in the senior year. Both juniors and seniors appeared to be aware of these problems, because both have higher incidences of reporting that they might have a drinking problem (Walfish et al., 1981).

Another important variable noted in research studies is the relationship between grades and college drinking. Engs (1977) found that the higher the GPA, the less students drank. Also, abstainers were reported to have significantly higher grade point averages than drinkers (Hughes & Dodder, 1983). Wechsler and McFadden (1979) compared levels of GPA and noted similar results;, that is, that heavy drinkers of

both genders had lower grades. Klein (1989) found that as
GPA increases, the number of alcohol problems decreases, on
average by about one problem for every full grade point.
Presley and Meilman (1992) also noted that the more
frequently a college student is involved with alcohol, the
more likely the student to have a low GPA.

The relationship of religion to college drinking also
has been examined. Several studies (Gusfield, 1961; Straus &
Bacon 1953; Wechsler & McFadden, 1979) found that, for both
genders, Catholics were the heaviest drinkers, far more than
any other religious group. Most of the studies noted that
Jewish students drank in greater proportions but were
involved with less negative behavioral consequences than
others studied. Those students who attended religious
services were more likely to be abstainers or light drinkers.
Perkins (1985) found similar results; however, as students
progressed through each academic year, Jewish students'
drinking steadily increased to match predominant religious
groups. Interestingly, Hughes and Dodder (1983) noted that
students who were from religious families with high
abstention beliefs were at risk for heavier drinking.

Significant discussion on the effects of group
affiliation, particularly fraternity involvement and student
activities, have been noted in college drinking. The
heaviest, most frequent problematic drinking is among
fraternity and sorority members (Goodwin, 1990; Mills,

Pfaffenberger, & McCarty, 1981; Tampke, 1990). Other researchers have found that Greek-letter organizations and house residents also were at the greatest risk for adverse negative consequences from drinking (Klein, 1989). Investigating activities outside the classroom experience, Cherry (1987) found that if students belonged to two or more college organizations, they were more likely to be light-to-moderate drinkers and concluded that "involved" students had less time for heavy drinking.

Parental drinking also is a significant factor related to college student drinking. Straus and Bacon (1953) and Hanson (1977) all found that when both parents drank, their college student children did too. Gusfield (1961) also found that college student heavy drinkers more frequently had parents who were judged heavy drinkers. Wechsler and McFadden (1979) noted similar patterns and, in particular, that college student heavy drinkers had fathers who were involved with heavy or problem drinking. Recently, Meilman, Stone, Gaylor, and Turco (1990) also reported that college students who noted having alcohol-dependent parents were at a higher risk for daily drinking.

A characteristic that has received some attention is ethnicity. Engs (1977) found that 84% of White and 60% of African-Americans drank, with 22% of White and 5% of African-American male students considered problem drinkers. Similarly, Wechsler and McFadden (1979) found that 82% of

White students drank, whereas 67% of African-American students drank. They also found that half of those who identified themselves as Asian-American males were classified as abstainers or light drinkers compared to one-third of African-American male and one-fifth of White male college students.

The characteristic which has received the least research are students' concerns about drinking. Although less than 28% of males and 11% of females thought they had a drinking problem (Hughes & Dodder, 1983), anywhere from 27% (Humphrey, Stephens, & Allen, 1983) to 87.7% (Engs & Hanson, 1986) claimed that they were adversely affected by their drinking. Thus, despite widespread use of alcohol, college students are relatively unconcerned about the adverse health consequences of their drinking.

<div align="center">

Characteristics of Problem Drinking
Among College Students
</div>

Problem drinking is defined through several different definitions and methodologies. One method to define problem drinking is measurement of the amount of heavy drinking. Excessive consumption and intoxication are usually measured by three factors: (a) quantity, which is the amount consumed on a typical occasion during a specified period of time, (b) frequency, which is the number of drinking occasions during a specified time period, or (c) both. Using quantity and frequency measurements, Engs (1977), Straus and Bacon (1953),

and Wechsler and McFadden (1979) found 14%, 17%, and 22%, respectively, of college students were heavy drinkers. Currently, the standard measure reported for heavy drinking or binge drinking is defined as consuming five or more drinks in one setting during the preceding 2 weeks. From the Monitoring the Future study, binge drinking was found to be 44% in 1980 and 41% in 1991 (Johnson et al., 1992). Presley et al. (1993) found 45% of college students binge drink. More alarming is that reported binge drinking is a phenomena learned in college which increases through the academic years (Wechsler et al., 1994a).

Another measure of problem drinking is to simply ask students if they are concerned about their drinking. However, such measurement has led to different reported percentages. Various rates cited have ranged from 8.5% (Engs, 1977) to 19% (Hughes & Dodder, 1983) to 35% (Wechsler & McFadden, 1979). Many self-reported problem drinkers also have been shown to be categorized as heavy drinkers (Hughes & Dodder, 1983).

Another procedure to define problem drinking is to assess negative behavioral consequences associated with drinking. Most studies on negative behavioral consequences from drinking have utilized Likert-type, self-report measures. However, there is no definitive negative behavioral consequences scale available. Nevertheless, generally, increased negative behavioral consequences have

been found to be characteristic of college student problem drinkers (Berkowitz & Perkins, 1986; Engs, 1977; Wechsler & McFadden, 1979).

Blackouts are a negative consequence that are defined as an amnesia-like period of time in which persons cannot recall what occurred even though they appear to be functioning normally (Ray & Ksir, 1990). Blackouts have been reported as characteristic of alcohol abuse or alcoholism (Straus & Bacon, 1953). Various studies have reported blackouts rates ranging from 18% for males and 5% for females (Straus & Bacon, 1953) to 29.4% for both (Hughes & Dodder, 1983).

Other negative behavioral consequences involve trouble with family or friends, physical fights, drinking alone, legal problems, getting drunk, drunk driving, and regretting what happened (Engs, 1977; Hanson, 1974; Hughes & Dodder, 1983; Wechsler & McFadden, 1979). Interestingly, Berkowitz and Perkins (1986) noted that negative behavioral consequences may be underreported for females because many negative behavioral consequences surveys involve visible, socially disrupted negative consequences considered "uncharacteristic" of females.

Another standard to indicate problem drinking is reason for drinking. Motivations for student alcohol use include drinking to enhance sociability, escape negative emotions, or get drunk (Ratliff & Burkhart, 1984; Straus & Bacon, 1953). Most heavy college student drinkers drink for social and

escapist reasons and to get drunk (Ratliff & Burkhart, 1984; Wechsler & Rohman, 1983).

Problem drinking also is measured through clinical assessments. Although several questionnaires have been developed for detecting alcoholism among the general population, some researchers have suggested that problem drinking among college students is different from clinical definitions of alcoholism (Smith, Collins, Kreisberg, Volpicelli, & Alterman, 1987). Drinking assessment instruments that have been used on college students include the MAST, CAGE, Mortimer-Filkins, SADQ, AAIS, and RAPI. The two instruments used most with college students are the CAGE and MAST. Ewing and Rouse (cited in Selzer, 1971) noted that the CAGE (an acronym for cut down, annoy, guilty, and "eye opener") scale is a brief, 4-item, self-report screening test to identify alcoholics. The MAST (Michigan Alcoholism Screening Test) is a 25-item, self-administered questionnaire. It is an instrument to detect alcoholism or problem drinking (Selzer, 1971). Research studies on college drinking which have utilized the MAST have indicated a concern for college problem drinking. For example, Favazza and Cannell (1977) administered the MAST at a large state university and at a small rural private college. Results from the former indicated a 19% drinking problem and 29% for the latter.

Seay and Beck (1984) also used the MAST as a measure of alcoholism among college students. They found that 32% of the students studied experienced difficulties with alcohol abuse, with 7% classified as alcoholics and 25% classified as problem drinkers.

Silber, Capon, and Kuperschmit (1985) administered the MAST to 200 students and concluded that 16% were at risk. They also concluded that the MAST was easily used for individual assessments and as a measurement of prevalence of alcohol abuse.

Longitudinal studies on college student drinking (which could indicate later-life problems) are inconclusive. Fillmore (1974) conducted a 20-year follow-up study on Straus and Bacon's study. Despite limitations such as sample size, demographics, and measurement instructions, Fillmore suggested that problem drinking among college students was predictive for problem drinking 20 years later, particularly for females. However, Donovan et al. (1983), while examining a younger cohort longitudinally, found that males and females who were classified as problem drinkers in adolescence or as college students tended not to be problem drinkers as young adults.

Based on research literature, then, there is considerable evidence for campus alcohol education programs to focus on problem drinking among college students. Heavy drinking, frequent intoxication, negative behavioral

consequences, get "drunk" motivations, and possible later-life problem drinking all suggest that campus alcohol education programs should address the promotion of alcohol education for college students.

Campus Alcohol Education Programs

Growing awareness during the 1970s that alcohol abuse constituted a major threat to the quality of campus life led researchers and public officials to establish alcohol educational strategies. A major initial attempt was developed by the federally funded "University 50 plus 12 Project." The project had three basic objectives: (a) to obtain information about campus drinking practices and attitudes and assess the extent of existing programs and needs, (b) to disseminate information on alcohol use and abuse, and (c) to stimulate new education and communication about college alcohol use and abuse (Kraft, 1977). The results of this project were that (a) project staff had contacted more than 16,000 students, administrators, and faculty at the 63 schools, (b) an idea-book was developed for colleges and universities, and (c) few institutions had established campus alcohol education programs (Kraft, 1977). However, since this inaugural project, most campuses have developed campus alcohol education programs (Anderson, 1994). Further, with the passage of the 1989 Amendment to the Drug-Free Schools and Community Act, institutions of higher

education have been mandated to develop alcohol education programs.

There is general agreement that colleges should provide alcohol education programs to students because of problems of alcohol abuse on campus, but rarely is there consistent agreement on theoretical approach, program strategies, or goals. Gilchrist (1994) wrote that most studies have focused on current consumption rates and patterns of use, identified precursors and predictors of drinking use, developed fragmented and atheoretical programs, and generally provided practitioners inconsistent direction for designing effective alcohol education programs. Gilchrist (1994) further noted that the skills required for a successful campus alcohol education program involve community organizational skills as well as expertise in substance abuse. Recently, elements for a "successful" program have been articulated by Goodale (Commission on Substance Abuse at Colleges and Universities, 1994) and include (a) support from the upper-level administration (i.e., president or trustees), (b) commitment for a permanent program, (c) shared ownership among a range of campus constituencies, including students and faculty, (d) high visibility and clear goals, (e) a prevention program staff, (f) approaches stressing individual student decision-making, and (g) programming tailored to the needs of a specific campus.

Tobler (1986) identified five major approaches among secondary school drug prevention programs: (a) knowledge enhancement, (b) affective change, (c) peer programs, (d) knowledge plus affective emphases, and (e) alternatives. Conyne (1984) noted six major approaches evident among college alcohol education programs: (a) sociocultural, (b) health education, (c) sociopsychological, (d) distribution of consumption, (e) system-wide, and (f) problem focused. More recently, Gonzalez (1994b) summarized campus alcohol education programs within four categories of emphases: (a) sociocultural, (b) distribution of consumption, (c) value expectancy theory, and (d) systems theory.

Goodstadt and Caleekal-John (1984) evaluated the effectiveness of 14 campus alcohol education programs which were based on these categories and found that, in spite of weaknesses in experimental design, there was considerable promise for impacting college students' alcohol-related behaviors. However, almost all of the 14 programs were conducted in classroom settings. In fact, Amatetti (1987) stated the classroom has been the single most popular site for alcohol education programs for youth. However, Amatetti also emphasized the need to expand the program beyond the classrooms. Therefore, campus alcohol education programs should be designed within a specific approach or strategy, have the ability to reach a specific at-risk population, and be implemented in innovative ways.

A Specific Approach for College Alcohol
Education Programs

The widespread use and abuse of alcohol have challenged institutions of higher education to develop programs to prevent increases in "risky" health behaviors. Most program efforts currently are educational (Kraft, 1977). Early education programs were based on the premise that by providing information about drugs (e.g., alcohol) people would not abuse them (Ungerleider, cited in Swisher, Warner, Spence, & Upcraft, 1973). Swisher and Crawford (1971) and Swisher, Warner, and Herr (1972) found that knowledge about drugs could be increased, but the programs generally did not affect attitudes toward use of drugs or change drug use behaviors.

Based on the mixed results of early alcohol education programs on college campuses, several researchers have examined specifically the kind of information presented to certain groups or populations. For example, Swisher et al. (1973) utilized four approaches to drug abuse prevention for college students: (a) discussion groups, (b) relationship counseling groups, (c) reenforcement counseling groups with college-age role models, and (d) reenforcement counseling groups with college-age role models who were reformed drug abusers. They found that none of the approaches was more successful in changing knowledge, attitudes, or use of drugs.

In particular, the use of role models (i.e., nondrug experienced and drug experienced) had no impact.

Health threat communication approaches have received considerable research and attention. Originally, fear models achieved little empirical support. However, in a review by Beck and Frankel (1981), health threat communication was established as an effective method when the message involved was a real threat, and it was particularly effective when used within the context of the Health Belief Model. Gonzalez (1994a) stated that three health threat components were important for a preventive educational message: (a) Alcohol abuse is a serious problem; (b) students are personally susceptible to the problem; and (c) alternative options to reduce risk of an alcohol problem are known. Consequently, an alcohol abuse health threat (message) is needed in order to make significant changes in health behavior in a campus alcohol education program.

<div align="center">High Risk Population</div>

One of the major health risk populations on college campuses is members of Greek-letter social organizations. For over 200 years, Greek-letter social organizations have been associated with institutions of higher education. These organizations developed from student initiatives and were created to provide alternatives to the rigors of the classroom experience (Horowitz, 1987). Greek-letter social

organizations have provided opportunities to develop
leadership skills and teamwork, promote democratic values and
a learning community, and develop mature interpersonal
relationships and personal identity (Winston & Saunders,
1987). However, these global pursuits also have been
associated with destructive behaviors among members of Greek-
letter social organizations.

Nationwide, the incidence of alcohol-related problems
among fraternity and sorority members has been increasing
(Hirschorn, 1988), and more and more tragedies have occurred.
For example, at Rutgers University, a fraternity pledge died
of alcohol intoxication at a fraternity event ("Freshman
Dies," 1988). Similarly, at a Princeton University eating
club (similar to a fraternity), the initiation event included
consumption of alcohol to an extent that almost killed a
student and necessitated that 44 other students receive
medical attention ("Two at Princeton," 1988).

Greek-letter social organization members (i.e., Greeks)
are more likely to drink and have more problems due to
drinking than non-Greeks (Mills & McCarty, 1983). For
example, Faulkner, Alcorn, and Garvin (1989) studied alcohol
consumption among fraternity pledges at a southern
university. They found that greater alcohol consumption was
directly correlated with positive views of the socialization
process. Similarly, Gusfield (1961), in examining the
structural context of college drinking, found that college

fraternity members drank more than nonmembers. He also reported that the college culture served as an important factor in the socialization process and use of alcohol among fraternity members.

Recently, Goodwin (1989) surveyed over 2,000 fraternity and sorority members in the fall of 1985. His purpose was to examine reasons for drinking, identify subgroups of students at high or low risk for alcohol addiction, and suggest strategies for lowering alcohol consumption. He found the major reason students drank was to feel good. He concluded that there was a minority of Greek-letter social members who consumed alcohol moderately and who should, therefore, be the focus of educational efforts to reduce alcohol consumption. Therefore, Greek letter social organization members are a strong target for a purposeful, specific alcohol education program.

<u>Support for Theoretical Model</u>

There has been a longstanding interest in documenting the relationship between attitudes or beliefs and behaviors. A model which examines beliefs and behaviors is the Health Belief Model (HBM), a widely used psychological theory formulated to determine the nature and impact of changing attitudes and beliefs in regard to health behaviors.

The HBM was developed in the 1950s to explain the
widespread failure of programs to prevent or detect disease
(Rosenstock, 1974). During this era, social psychologists
attempted to understand and examine specific health programs
which had their foundations in Stimulus-Response theory and
Cognitive theory (particularly that of Lewin) (Rosenstock,
1990). In 1952, Hochbaum was intrigued by the failure of
large numbers of adults not participating in free
tuberculosis screenings. Therefore, he studied individuals
who participated in the screenings and focused his research
on forces that drive behavior rather than inhibit it. Based
on Hochbaum's research and other early health screening
programs, researchers expanded and clarified the HBM
(Rosenstock, 1974, 1990).

> The major emphasis in the HBM is that individuals
> will ward off, screen for, or control ill-health
> conditions if they regard themselves as susceptible
> to the condition, if they believe it to have
> potentially serious consequences, if they believe
> that a course of action available to them would be
> beneficial in reducing either susceptibility or the
> severity of the conditions, and if they believe
> that the anticipated barriers to (or costs to)
> taking the actions are outweighed by its benefits.
> (Rosenstock, 1990, p 43)

Within the HBM, individuals will seek preventive care or good
health when they possess relevant health motivation and
knowledge, consider themselves vulnerable, perceive the
condition as threatening, and are convinced behavior change
would be beneficial.

In 1974, Health Education Monographs devoted an entire issue to the HBM. The monograph summarized key findings from research related to health behavior and provided major support for the model in explaining behavior pertinent to prevention (Rosenstock, 1990). Following the monograph's publication, the HBM continued to receive wide acceptance in the health field.

In 1984, Janz and Becker provided a detailed review of HBM research conducted between 1974-1984. Using "stringent criteria for inclusion," Janz and Becker (1984) examined 46 HBM studies. The various studies involved different populations and problems including influenza inoculation, a Tay-Sachs carrier status screening program, the practice of breast self-examination, seat belt use, exercise, weight loss programs, and fear of being apprehended while under the influence of alcohol. Janz and Becker's results provided substantial empirical support for the HBM. More recently, Harrison, Mullen, and Green (1992) conducted a meta-analysis on HBM research studies which included the four basic dimensions of susceptibility, severity, threat, and benefit. They found significant positive relationships between the HBM basic dimensions and positive health behavior results.

A considerable body of literature supports the use of the HBM as an organizing framework for explaining illness, disease, and other preventable health problems (Becker, 1974; Kegeles, 1980; Rosenstock, 1974). For example, in regard to

health education programming, Nathanson and Becker (1983) utilized the HBM to promote the use of contraceptive devices among young unmarried women. They were effective in improving beliefs about contraception, sexual knowledge, and contraceptive behavior among adolescents. More recently, the HBM has been recommended as an effective approach for reducing sexually transmitted disease and increasing safe sex intentions among adolescents (Petrosa & Jackson, 1991; Simon & Das, 1984). The HBM also has been used for health education programming for alcohol use, AIDS education, and smoking cessation programs.

Although there has been considerable support for the HBM, it is not without criticism. Rosenstock (1990) identified five areas of concern related to the HBM. The first was that the belief-behavior relationship has never been established firmly (which Rosenstock also stated could be leveled against the field of social psychology in general). The second was that direct attempts to modify beliefs have often been unsuccessful within the HBM and that alternative approaches should be encouraged. A third was that the HBM relies on changes in individuals and that for successful health interventions to occur, economic and/or socio-environmental factors also must contribute to prevention efforts. A fourth criticism was the lack of quantification. The HBM dimensions have frequently been measured only with nominal scales and rarely with ordinal

scales. Harrison et al. (1992) supported the development of better instruments purported to measure HBM dimensions. A fifth criticism was that the HBM "blames" the victim rather than the health behavior.

Although the HBM has been used to evaluate health prevention programs, it was not until 1978 that Iverson proposed that the HBM be used to develop drug education/ prevention programs. He stated that the HBM would provide a systematic approach to drug abuse prevention, a formal model to identify relevant research, an opportunity to incorporate different evaluation methods, and a way to evaluate the effectiveness of drug prevention programs. However, within the field of alcohol abuse, very few studies have been examined with the HBM.

Two studies have applied the HBM in the area of alcoholism treatment. Hingson, Mangione, Meyers, and Scotch (1982) surveyed Boston area residents who reported having had a drinking problem and compared the responses of people who went for treatment with those who had not. They found perceived severity as the most important belief differentiating treatment users from nonusers; the other HBM dimensions did not differentiate between the groups. The second study on the HBM and alcoholism treatment outcomes was conducted by Bardsley and Beckman (1988) and used the Hingson et al. (1982) design to improve the study by measuring the HBM dimensions upon entering treatment. Similar to the

Hingson et al. study, the researchers found perceived severity as more characteristic of people in treatment than not in treatment. However, support for the other HBM dimensions was less consistent. The researchers concluded that their measurements of perceived susceptibility and benefits were unclear.

A study of the HBM dimensions and driving under the influence among college students yielded mixed results. Beck (1981) used two social psychological theories, Fishbein's model and the HBM, to examine attitude and belief factors as related to the ability to predict intentions to drive while under the influence of alcohol and actual drinking-driving behavior in a college population. The HBM items were constructed with regard to two possible outcomes of drinking and driving that might be a concern to college students: (a) getting caught by police and (b) causing an accident while driving under the influence. Unfortunately, the manner in which the author reported the findings made it difficult to decipher the relationships between HBM dimensions and actual drinking and driving behaviors.

In another study involving prevention of drinking and driving, Albert and Simpson (1985) used the HBM successfully in a classroom intervention program designed to prevent impaired driving among young adults. Significant, positive health behavior changes were reported among those students who received the treatment as compared to those who did not.

In regard to use in college alcohol education programs, the HBM has achieved mixed success. Portnoy (1980) used the HBM in a structured health education college course. Although Portnoy found significant gain in knowledge, he did not find support for the theoretical use of the HBM in alcohol education efforts. He concluded that a possible explanation for low susceptibility levels was inappropriate classroom lectures, that is, only 12% of class time was devoted to susceptibility. He suggested greater focus on personal alcohol-related problems rather than on medical and psychological problems which often seem remote to college students. As to perceived seriousness, the students reported that knowledge of responsible drinking and major barriers did not prevent them from adapting drinking behaviors. Portnoy stated that more emphasis should be placed on specific responsible drinking techniques and suggested the HBM as a theoretical basis for studies on populations with non-responsible drinking patterns. Kleinot and Rogers (1982) applied the HBM principles to 100 students in a class which incorporated persuasive communication strategies. They found high noxiousness communications produced significant changes in motivating intentions not to drink.

Gonzalez (1988) proposed that the progress made in college alcohol education programs to date were due to HBM principles. He wrote that the HBM can assist in explaining the development of alcohol education programs in institutions

of higher education. At the macro level, alcohol abuse has been recognized on college campuses as the leading social and health threat to college students (Goodale, 1986). Therefore, Gonzalez stated that the first two principles of the HBM model, susceptibility and severity, were already driving forces in the development of college alcohol education programs (Gonzalez, 1988, 1994b). He further argued that the third HBM principle, alternative behaviors, has been demonstrated through alcohol policy initiatives and the implementation of more alcohol education programs on campuses across the country (Gonzalez, 1988, 1994b). Therefore, according to Gonzalez, the HBM has been successful at the macro-level in higher education.

Gonzalez also proposed a comprehensive model for campus alcohol education programs which includes the HBM. Gonzalez believes that for an alcohol education program to be successful, students must understand "that alcohol abuse is a serious problem, that they are personally susceptible to this problem, and that they have options to reduce the risk of being affected by an alcohol problem" (Gonzalez, 1994a, p. 19). According to his model, these three factors are essential for a successful educational message to college students. Therefore, a successful alcohol education program should be designed to include these (HBM-based) messages.

Need for the Study

The college environment constantly provides new, challenging, and often risky opportunities for college students. Upon entering college, a transition takes place from parental approval and advice to individual self-management. Whereas most of the challenges confronting college students are positive, for a significant number of students it is risky and involves psychological, cultural, and physical changes.

To combat these challenging and risky changes, institutions of higher education have developed health programs through academic departments, counseling centers, and medical facilities. The development of health education programs emerged in 1836 at Mt. Holyoke College when a course on hygiene and physiology was offered (Sloane & Sloane, 1986). According to some records, the first professional health educator in higher education was hired in 1954 at the University of Minnesota (Boynton, 1971). At that time, the topics of concern were nutrition, smoking, alcohol use, reproductive health, and physical exercise. Since health education began, some of the health concerns in higher education have changed dramatically, but alcohol abuse still remains a major health factor. For example, Gallagher, Harmon, and Ligenfleter (1994) conducted a survey among chief student affairs officers which found that serious psychopathology among college students had increased steadily

in the past 5 years. The respondents indicated a significant rise in severe emotional problems, sexual harassment, acquaintance rape, dating violence, stalking, and alcohol abuse.

In a comprehensive review of college and university counseling center activities, Stone and Archer (1990) noted major challenges and limitations facing counseling centers. A major challenge cited was managing the increasing number of serious psychological problems among college students. The specific presenting problems reported were (a) eating disorders, (b) substance abuse, (c) sexual abuse and violence, (d) dysfunctional family experiences, and (e) AIDS. They also noted that these problems will continue to impact counseling centers' services in the future.

In another article, Sandeen and Rhatigan (1990) selected the most critical issues that will influence the field of student affairs in the future. The six areas identified were (a) ethnic issues, (b) women's issues, (c) safety and security, (d) health issues, (e) substance abuse, and (f) national political and economic forces. According to these authors, student affairs professionals need to have the ability to deal with social issues and develop strategies to respond to changing times and needs. The authors also noted the increasing need to respond to students who attend institutions of higher education and who come with significant problems and to work with students who develop

problems while at college. Importantly here, according to
Sandeen and Rhatigan (1990), substance abuse issues will
increase due to the stressful pace of college life, focus on
individual competition, academic and personal stress, and
availability of alcohol and drugs.

Increased alcohol consumption and associated risk taking
by college students is relatively common. Often times, it is
regarded as a "rite of passage." However, this "rite" has
many possible negative consequences including hangovers,
blackouts, unintended or regretted sexual behavior, alcohol-
related arrests or offenses, driving under the influence, and
sometimes death. Alcohol abuse remains the most dangerous
and abused drug on campus, as elsewhere in society. Dr.
Charles Reed, Chancellor of the Florida State University
System, stated that "alcohol abuse at the state [of Florida]
universities is the biggest, toughest, long-standing problem.
Almost every bad incident that occurs on the campus--whether
it's date rape, whether it's assault, or whether it's
property damage--leads back to alcohol" (Wheat, 1988, p. B1).
At the National Conference of Alcohol Abuse and Alcoholism in
November, 1987, U.S. Secretary of Health and Human Services,
Dr. Otis Bowen, stated that "alcohol use on college campuses
is pervasive, contributing to poor grades, excessive
vandalism, many injuries, and not so infrequently, death."
At the same conference, George Gallop stated, "A majority of
students at an Ivy League College study conducted last year

showed that one in six of the seniors admitted to having a drinking problem. This many impaired students, entering the work force, and soon to assume leadership roles, gives one cause of concern" (NIAAA, 1988).

A national study which projected demographic trends in alcohol abuse and alcoholism from 1985 to 1995 concluded that about 10% of 18- to 20-year-old males and 6% of 18- to 20-year-old females are suffering from alcohol abuse, with another 13% of 18- to 20-year-old males and 5% of 18-to 20-year-old females projected to have problems with alcoholism (Williams, Stinson, Parker, Harford, & Noble, 1987). A contributing factor associated with consumption of alcohol is violence in college relationships. Aizenman and Kelley (1988) reported that 22% of the college students surveyed experienced dating violence, which is similar to research reported by Makepeace (1981) and Matthews (1984). Miller and Marshall (1987) found that more than half of the women who experienced coercive force in a sexual relationship had been under the influence of alcohol, and more than 70% of the male perpetrators indicated that they were under the influence. The data on alcohol and sexual behavior also are extremely disconcerting in regard to unintended pregnancies and the spread of sexually transmitted diseases such as HIV--human immuniodeficiency virus. Wechsler and Isaac (1992) found that among college freshmen in Massachusetts, 23% of college men and 14% of college women had engaged in unplanned sexual

activity in the past year due to alcohol use. Meilman (1993) also found that 35% of college students engaged in sexual behavior under the influence, and more than half of the 35% failed to practice safe-sex techniques. In fact, he found that women engaged in sexual activity and unsafe sex at double the rate of men due to drinking. In light of the statistic that 1 in 500 college students test positive for AIDS (Gyle et al., 1990) and that more than 40% of college students binge drink (Wechsler & Isaac, 1992), alcohol abuse is a major college student health problem.

Risk factors for developing alcohol problems have been reported as early as age of first use (Gonzalez, 1989b), high consumption, family history of alcohol abuse, and problems in life areas (Kraft, 1988). Incidence of college alcohol abuse also can be found at university health service facilities and police stations. For example, Meilman, Yanofsky, Gaylor, and Turco (1989) reported that 24% of student injuries at emergency departments and 4% of injuries at campus health services were contributed to alcohol use. More interesting is that more than a quarter of medical students at a major western health center reported having parents with alcohol abuse problems, which is double the rate of the general population (Dilts, House, Arthur, & Hurley, 1993). Researchers also have examined drinking problems among drunk-driving offenders and nondrunk-driving offenders. Borges and Hanson (1993) found that DUI offenders reported more binge

drinking and had been younger at the time of their first use of alcohol.

Data from these studies on college campuses indicate a serious and significant problem with alcohol abuse and the need for institutions of higher education to develop effective alcohol education programs. According to Gallagher et al. (1994), significant student health problems, including alcohol abuse, drain work and resources from student affairs professionals, and influence other "healthy" students negatively. Therefore, a specific alcohol education program should assist student affairs work and resources.

The results of this study could have major implications for college and university personnel. For example, it could provide greater understanding of using a specific model to change alcohol behaviors among at-risk college students. Thus, the applicability of the HBM and the communication message would not be limited to alcohol educators but would be relevant to other health issues as well.

<u>Summary of the Literature</u>

Alcohol abuse is a significant and serious health problem confronting institutions of higher education. College students are at a stage of profound growth and development, and alcohol abuse can seriously retard positive developments. The magnitude of the problems, the related factors (i.e., gender, GPA, and group affiliation), and the

characteristics of problem drinking can place limitations to personal student growth and the campus environment.

Indicated in this review of the literature is the need for further research in the area of campus alcohol education programs. Although many educational and awareness programs exist, the lack of solid theoretical approaches among them is detrimental.

Studies have suggested that a specific educational message supported by a specific theoretical approach could make an impact on alcohol abuse health behavior. A study of a systematic, theoretical approach with a specific alcohol education message needs to be conducted in order to determine if specific health messages can impact health behaviors. Such research would provide student affairs professionals, counselors, and educators with significant information about the impact of health messages among college drinking students.

CHAPTER III
METHODOLOGY

The purpose of this study was to apply the Health Belief
Model (HBM) in an investigation of the differential
effectiveness of the use of information methods to alter
college students' drinking attitudes and behaviors. A post-
test only research design, with a 6-week follow-up, was
employed. Data were gathered on attitudes as reflected in
the Health Belief Questionnaire (HBQ), on drinking behaviors
and consequences as measured by the Michigan Alcoholism
Screening Test (MAST), on negative drinking consequences as
measured by the section of alcohol-related problems in the
Student Drinking Information Scale (SDIS) developed by
Gonzalez (1978), and on frequency of participation in binge
drinking. A qualitative component also was included to allow
for examination of subjective reactions to the treatment.

This chapter describes the methodology used. Included
are descriptions of the relevant variables, population,
sample and sampling procedures, instrumentation, and data
analyses. The chapter concludes with a discussion of the
methodological limitations of this study.

Relevant Variables

The dependent variables were the three dimensions of the
Health Belief Model as measured by the HBQ: (a) perceived
threat, (b) perceived benefit, and (c) perceived barriers.
The three Health Belief dimensions are based on Rosenstock's
Health Belief Model (1974).

The independent variables for the study were treatment
conditions: (a) written alcohol-threat information, (b)
written general alcohol information, and (c) written general
health information. Other independent variables included in
the study were (d) gender, (e) age, (f) semester hours
completed, (g) time of assessment, (h) classification as
either a nonalcoholic, problem drinker, or alcoholic, (i)
frequency of negative consequences classified as low,
moderate, high, and (j) frequency of engagement in binge
drinking within the previous 2 weeks.

Population

The population of interest for this study was drinking
college students in traditionally white fraternities and
sororities (i.e., Greeks). Participation nationally in
Greek-letter social organizations is estimated to be 400,000
males and 250,000 females, about 15% of the white
undergraduate college student population (Wilkerson, 1989,
cited in Kuh & Arnold, 1993).

The sample of fraternity and sorority members was selected from undergraduate students attending the University of Florida (UF) in Gainesville, Florida, who participated in Greek-letter social organizations. The University of Florida was described as a major, public, comprehensive, land-grant, research institution (University of Florida, 1994). Students from more than 100 countries are represented, as are all 50 states, and the 67 counties in Florida. According to the University of Florida (1994), there are 53% male and 47% female students with 33% classified as freshmen and sophomores, 43% as juniors and seniors, 17% as graduate students, and 6% in professional programs, for a total of 38,399 students in 1994.

According to the Student Guide (University of Florida, 1994-95), UF Greek student organizations exist to promote scholarship, leadership development, and a social environment. At UF, Greek-letter social organizations include 16 National Panhellenic Council chapters (i.e., sororities), 25 National Interfraternity Council chapters (i.e., fraternities), and 6 National Pan-Hellenic Council chapters (i.e., African-American fraternities and sororities). According to the UF Assistant Dean for Greek Affairs, there are over 4,700 white undergraduate students involved in Greek-letter social organizations, including 2,200 males and 2,500 females (S. Herman, personal communication, December 2, 1994). UF Assistant Dean Herman

also indicated that approximately 35% of the UF Greeks are freshmen, 25% are sophomores and juniors, and 15% are seniors. Approximately 16% of UF white, undergraduate students are involved with Greek-letter social organizations.

<div align="center">Sample and Sampling</div>

Prior to contact with the potential subjects, permission was received from the UF (Human Subjects) Institutional Research Review Board (IRB). Support for the study was obtained from the UF Dean of Students. Additionally, permission was obtained from the Dean of Students to allow UF Interfraternity and Panhellenic Council chapters who participate in this research study to receive credit towards fulfillment of the UF Office for Student Services' requirement for presenting an alcohol education program once a year.

A minimum of eight fraternities and four sororities was required for the research from the Interfraternity and Panhellenic Council. During the Spring semester of 1995, a meeting with both the Interfraternity Council president and Panhellenic Council president was arranged to explain the research study and solicit approval and support. It was explained that no individual Greek chapter would be identified or analyzed specifically in the write up of the research.

Following this meeting, a letter was sent to each UF fraternity and sorority president requesting chapter participation (Appendix A). A week after this letter was mailed, the researcher contacted each fraternity and sorority president in an alphabetical chapter order by phone to explain the research and to arrange for the study to be conducted. If a chapter was unavailable to participate or was not interested, the researcher contacted the next chapter following on the alphabetical listing until enough potential subjects were solicited. During the phone call, the researcher arranged the time, date, and location for chapter participation and requested a date, time, and location to conduct the 6-week follow-up session. A week prior to the follow-up session, the researcher contacted the chapter president again to reconfirm the follow-up activities.

The research was conducted prior to a chapter meeting. At the respective meetings, the researcher introduced the study and instructed the participants to read and sign the informed consent form (Appendix B). Students were advised that this form would be kept separate from other materials collected and would be maintained as anonymous responses. The resultant sample consisted of approximately 96 sorority members and 171 fraternity members affiliated with the UF Greek-letter organizations. The sample was derived by the percentage of undergraduates at UF, the fact that more males have drinking problems than females, and having three

treatment conditions. The sample yielded more subjects than the sampling frame. After follow-up, the completed data were organized to match the sampling frame for females. A diagram of the sample is presented in Table 1.

Table 1

Expected Sample of UF Greek Members for Each Treatment Condition

Male (64)				Female (32)			
No drinking problem		Problem drinking		No drinking problem		Problem drinking	
24		8		24		8	
F S J S		F S J S		F S J S		F S J S	
9 6 6 3		3 2 2 1		9 6 6 3		3 2 2 1	

F=Freshmen, S=Sophomores, J=Juniors, S=Seniors

Procedures

The study was conducted by providing the participants with informational material (i.e., the treatment) to read. The informational materials were randomly distributed by delivering treatment forms 1, 2, and 3 to the subjects. There was an item in the demographic information section for subjects to identify the form number for the treatment method received (Appendix C). The participants were given 15

minutes to read the material. Nondrinkers were excluded from the analysis.

After the participants completed the reading, they immediately completed and returned to the researcher the following items in sequence:

1. Demographic information (with form number),

2. Health Belief Questionnaire,

3. Michigan Alcoholism Screening Test,

4. Negative drinking consequences from Student Drinking Information Scale, and

5. Frequency of Binge Drinking.

After the subjects completed the questionnaires, they were reminded that in 6 weeks there would be a follow-up session. At the 6-week follow-up session, participants were requested to respond to the same questionnaires in the same sequence.

A (qualitative) interview was conducted (by trained graduate students) at the 6-week follow-up session for a randomly selected sample of six subjects from each participating fraternity and sorority chapter. The six subjects were selected randomly in order to have the three treatment conditions represented twice. A minimum of 48 interviews were conducted.

A letter was sent to the national/international headquarters acknowledging each chapter's participation in this study.

Assessment Instruments

The instrumentation for this study included a demographic inventory, the Health Belief Questionnaire (HBQ) (Stiles, 1987), a modified Michigan Alcoholism Screening Test (MAST) (Phillips & Heesacker, 1992; Seay & Beck, 1984; Selzer, 1971), a negative drinking consequences scale (Gonzalez, 1978), and a measure of frequency of binge drinking (Wechsler, Davenport, Dowdal, Moeykens, & Castillo, 1994b; Wechsler & Isaac, 1992). Semi-structured interviews were conducted with fraternity and sorority members to explain further the information obtained.

Demographic Inventory

The demographic inventory (Appendix C) solicited information from participants in regard to gender, age, and semester hours as of Fall 1994.

Health Belief Questionnaire

The HBQ (Appendix D) is a two-section instrument developed by Stiles (1987) to assess the three dimensions of the HBM. Section I contains items having Likert-type scales to measure perceived susceptibility (threat) to illness and perceived efficacy (benefit) of health behavior to reduce risks. These two indices on the HBQ were originally developed by Cioffi (1980) and later adapted by Stiles (1987). The perceived susceptibility index score ranges from 10 through 78, with higher scores indicating perception of greater susceptibility (threat) to future illness (Stiles,

1987). Perceived benefit scores range from 24 to 156, with higher scores indicating perception of greater efficacy to reduce health risks (Stiles, 1987). Section II contains items measuring the third dimension, perceived barriers. This index was developed by Stiles (1987) based on Bandura's (1977) concept of self-efficacy. Scores range from 0% through 100%, with higher scores indicating greater perception of greater self-efficacy to perform a health behavior.

The reported HBQ internal consistency reliability coefficients for perceived threat and perceived benefit were .87 and .85, respectively (Stiles, 1987). The test-retest reliability coefficient was .82 for specific threat. For perceived benefit, the test-retest coefficient was .72 for specific actions for the prevention of illness. The scale for perceived barriers had a moderate test-retest reliability of .56 (Stiles, 1987).

The HBQ is essentially self-administered. Directions for completing it appear on the first page of the questionnaire, and instructions for the proper item rating appear at the top of each page. The HBQ takes about 10 minutes to complete.

The Michigan Alcoholism Screening Test

Selzer (1971) developed the MAST to provide a consistent, quantifiable, structured instrument for the detection of alcoholism. The MAST (Appendix E) consists of

25 items and is self-administered (Selzer, 1971). It emphasizes behavior and consequences from alcohol consumption. By examining behavior, rather than consumption rates, a better assessment is made because problem drinkers are unreliable in estimating their alcohol intake (Seay & Beck, 1984; Selzer, 1971). A scoring system was devised that minimizes "false positives" and "false negatives" (Selzer, 1971).

The original MAST was validated by comparing test responses with observed behaviors of (a) hospitalized alcoholics, (b) persons convicted of drunk driving, (c) persons convicted of drunk and disorderly behavior, and (d) drivers whose licenses were under review (Selzer, 1971). The validity of the MAST to predict alcoholism was assessed by searching legal, social, and medical records and reviewing the driving and criminal records of the subjects. The MAST failed to identify only 5.9% of otherwise identified alcoholics (Selzer, 1971).

Selzer (1971) also studied 99 hospitalized alcoholics who were instructed to give false responses to the MAST, yet 92% were still identified as alcoholics. Selzer, Vinokur, and van Rooijen (1975) reported internal consistency reliability of the MAST by examining two groups of subjects involved with problems related to alcohol consumption. Values of the coefficients ranged from .83 to .95. Zung and Charalampores (1975) reported that internal validity was

satisfactory by conducting item analyses with two groups of
drinkers. Item analyses produced correlation coefficients
ranging from .30 to .79. Miller (1976) summarized several
studies on the MAST and concluded that the internal
consistency and external validity were satisfactory.

The majority of the validity studies involving the MAST
were conducted on middle-aged white males. However, the MAST
has been used with various other populations (Favazza &
Pires, 1974; Moore, 1972; Selzer et al., 1975). Selzer et
al. (1975) concluded that the reliability and validity of the
MAST questionnaire are "relatively unaffected by age and the
denial of socially undesirable characteristics" (Selzer et
al., 1975, p. 125).

The MAST has been used with college students (Favazza &
Cannell, 1977; Phillips & Heesacker, 1992; Seay & Beck, 1984;
Silber et al., 1985). Two of the original items were altered
to alleviate sexist language and increase suitability for the
college population (Phillips & Heesacker, 1992; Silber et
al., 1985). Item 3 was changed to "Do your family members
[Does you wife (or parents)] ever complain about your
drinking?" and Item 12 was changed to "Have any of your
family members [Has your wife (or other family members)] ever
gone to anyone for help about your drinking?"

The MAST items require a "yes" or "no" response. The
MAST involves minimal training to administer. It takes 10 to
15 minutes to complete (Selzer et al., 1975). It is scored

by summing 24 "differentially" weighted items (1 item is not scored), and the results are interpreted as indicating alcoholism when the total score exceeds a criterion of 4 points (Selzer, 1971). For purposes of this study, scoring for drinking college students (Seay & Beck, 1984) was used; 0 to 4 constituted not an alcoholic, 5 to 9 constituted a problem drinker, and 10 or above constituted an alcoholic.

Negative Drinking Consequences Scale

The Student Drinking Information Scale (SDIS) (Appendix F) was developed by Gonzalez (1980). The instrument contains various sections which include demographic information, knowledge of alcohol, quantity-frequency of consumption, and negative drinking consequences. The negative drinking consequences scale consists of 20 alcohol-related problems generally reported by drinking college students. Respondents are requested to indicate how many times, from never to 5 or more, they have experienced these problems during the past year. The 20 items include such questions as the frequency of having a hangover and not remembering doing things. The time period covered requesting for having these problems occur is usually 1 year, but the frequency can be adjusted, for example, to measure the past 3 months or 6 months.

The negative drinking consequences scale produces a score of between 0 to 100. In order to score this scale, one adds the number of events a respondent reports for each item. For example, if a respondent reports "Never" to the question

of how many hangovers he/she experienced in the last year, the response is scored a value of zero. The value assigned to each item is added for all 20 items to yield a total negative drinking consequences score. For purposes of this study an overall negative consequences score was used as well as noting low (1-20), moderate (21-59), and high (60-120) consequences.

The Student Drinking Information Scale has been used extensively in assessing college alcohol education programs (Flynn & Brown, 1991; Gonzalez, 1980; 1984; Shore, 1983; Stolberg, 1987). Gonzalez (1984) reported the Pearson Product-Moment correlation coefficients yielded a reliability score of .81. It takes approximately 5 minutes to complete this scale.

Binge Drinking

The annual survey from the Monitoring the Future Project conducted at the University of Michigan defined heavy drinker as an individual who consumes five or more drinks in a row during the previous 2 weeks. The response categories are none, once, twice, 3 to 5, 6 to 9, and 10 or more times. In 1992, Wechsler and Isaac coined the term "binge" drinkers using the same item defined as heavy drinking in the Monitoring the Future Project. They found that more than half the men and a third of the women surveyed reported having consumed five or more drinks in a row at least once during the previous 2 weeks. Wechsler and Isaac (1992) also

compared current binge drinkers with data collected in 1977.
They concluded that the current drinking style among college
students involves frequent consumption of large quantities of
alcohol, various problem drinking behaviors, frequent
drunkenness, and the perception of acceptance of heavy
drinking in social situations by college drinkers.

This study included a closed item (i.e., yes or no
response) question (Appendix G) to whether male students
consumed more than five drinks in a row on one occasion in
the previous 2 weeks. Females were asked a similar question;
however, they were asked if they consumed four or more drinks
in a row to take into account gender differences in
metabolism of alcohol and body mass (Hughes & Dodder, 1983;
O'Hare, 1990; Wechsler et al., 1994b).

Interviews

Conducting surveys to gather data about college students
is the most widely used approach in student affairs (Stage &
Russell, 1992; Tinsley & Irelan, 1989), but using
standardized instruments and surveys may provide limited data
about the campus environment (Kuh & Andreas, 1991).
Therefore, a method which offers a "richer" picture of the
campus environment is a process of collecting data with both
quantitative and qualitative methods called method
triangulation (Denzin, 1978). Method triangulation involves
quantitative and qualitative methods which complement rather
than rival one another and provides greater support for the

results (Stage & Russell, 1992), that is, method triangulation is a way to improve the validity of the results (Mathison, 1988). Therefore, structured interviews (Appendix H) were conducted to obtain supplemental information to compliment the quantitative data.

The semi-structured interviews took approximately 20 minutes and were conducted by trained graduate students at the follow-up session. The interviews were designed to elicit information that supported the quantitative information. Six subjects from each participating fraternity and sorority were randomly selected to be interviewed representing two from each treatment condition. Questions the subjects were asked include the following:

1. Do you think drinking is a serious health problem for college students? (perceived threat)

2. Do you think you know how to change or avoid having a drinking problem? (perceived benefit)

3. Do you know how to change your current drinking behaviors? (perceived barriers)

4. Do you think the risks for college drinking students are real? (HBM)

5. In the last 6 weeks, did anything remind you (cues) of the risks of drinking? (HBM)

6. Do you intend to reduce your risks of drinking based on the information you received from this study? (changes from the treatment)

In regard to qualitative data, Stainback and Stainback
(1988) noted that data collected are reliable and valid if
the data represent what the researcher was attempting to
study. Researchers are likely to influence the
interpretation of the data analyses due to interests and
backgrounds (Stainback & Stainback, 1988). To enhance
reliability, other investigators can assist in the collection
of data. Therefore, graduate assistants who are not
otherwise connected to the study were trained to conduct the
interviews and code and classify the responses.

Data Analyses

After treatment, a 3 X 2 X 3 X 3 factorial analysis of
variance was used to analyze the data for each of the three
health belief dimensions. Analysis of variance was used to
determine main and interaction effects for the independent
variables (a) type of treatment (written alcohol threat
information, general alcohol information, or general health
information), (b) gender, (c) drinking type, and (d) negative
drinking consequences for the three HBQ dimensions. A
correlation study between time of assessment and age along
with the number of semester credit hours completed was
conducted. Analysis of negative drinking consequences was
made through a 3 (drinking type) X 3 (negative drinking
consequences scale) chi-square immediately following
treatment and at follow-up. Analysis of binge drinking was

made through a 3 (drinking type) X 2 (binge drinking
classification) chi-square.

The qualitative data were evaluated through use of
intuitive content analysis. Content analysis involves
identifying important examples, themes, and patterns in data
(Patton, 1989). Also, significant quotations or observations
and noting underlying ideas and themes were reported.
Response "categories" were created for each of the six main
interview questions. Global response categories were
generated to provide differentiation in possible responses.
For example, for question one, "Do you think drinking is a
serious health problem for college students," the response
categories were (a) no threat, (b) little threat, (c)
moderate threat, or (d) serious threat. A category of
"unclassified response" also was included for each question.

For the second question, "Do you think you know how to
change or avoid having a drinking problem," the response
categories were (a) I know how to avoid a problem, (b) I
don't know how to avoid a problem, or (c) not a problem.

For the third question, "Do you know how to change your
current drinking behavior," the response categories were (a)
yes, and they are _____ and (b) no.

For the fourth question, "Do you think the risks for
college drinking students are real," the response categories
are (a) the risks are real, (b) the risks are not real, and
(c) unclassified.

For the fifth question, "In the last 6 weeks, did anything (cues) remind you of the risks of drinking," the response categories were (a) yes, and they are _____, (b) no, and (c) unclassified.

For the sixth question, "Do you intend to reduce your risks of drinking based on the information you received from this study," the response categories were (a) no, (b) maybe, or (c) yes.

Graduate students were trained to conduct content analysis involving coding schemes for observing behavior (Patton, 1989). The graduate students were trained to interview the subjects using the coding scheme and then to translate responses into the categories developed for the coding schemes. The scheme provided frequencies in categories that could be analyzed (Patton, 1991) and were analyzed in regards to the three treatment conditions.

This research included the qualitative section to help explain the quantitative data and to develop a profile on health beliefs for drinking college students. Steckler, McLeroy, Goodman, Bird, and McCormick (1992) have argued that health education and health promotion programs should include qualitative research because there is a need to examine internal dynamics for programs, clients, and interventions, not just whether interventions work or not. A narrative description of the qualitative responses was developed. Reliability of the information collected was analyzed for

interrater reliability. Interrater reliability was checked using the graduate students' responses, and then the primary investigator reviewed half the audio tapes to measure interrater reliability.

<div align="center">

Limitations

</div>

Subjects were assumed to be equivalent across groups on the basis of random selection in a posttest-only design. This design controlled for most threats to internal validity. However, the design did not necessarily control for the effects of contemporary history and maturation (Isaac & Michael, 1982).

Methodological limitations also existed due to the self-report format of the survey instruments. However, the instruments were selected based on sufficient reliability and validity coefficients. Additionally, some subjects were not included in the data because they were not involved at both treatment and follow-up. Because of oversampling, the sampling frame was completed.

CHAPTER IV
RESULTS

Presented in this chapter are the data and data analyses derived from the posttest-only design with a 6-week follow-up study of the differential effectiveness of three information messages intended to alter college students' drinking attitudes and behaviors. The independent variables were the three treatment conditions which included three written information messages: (a) alcohol-threat, (b) general alcohol, and (c) general health. Other independent variables examined included time of assessment; gender; age; semester hours completed; drinking type, as either nonalcoholic, problem drinker, or alcoholic; negative drinking consequences, as either low, moderate, or high; and frequency of binge drinking. Drinking type was determined from the MAST (Selzer, 1971). Negative drinking consequences were measured by a scale in the SDIS (Gonzalez, 1978). Frequency of binge drinking was assessed by a closed question derived from the research of Wechsler and Isaac (1992). The dependent variables of perceived threat, perceived benefit, and perceived barriers were measured by the HBQ (Cioffi, 1980; Stiles, 1987).

Interviews also were conducted with a subsample of subjects at the 6-week follow-up to supplement the quantitative information collected. Response categories were created for each of the six questions. Trained graduate students conducted the interviews.

Descriptive Data

Of the 371 students who participated in this study, 267 participated in both the treatment assessments and the 6-week follow-up. This sample included 171 males (64%) and 96 females (36%) from 10 fraternities and 4 sororities. The sample was predominately Caucasian (92%) but also included Hispanic (6%), Asian/Pacific Islander (<2%), and Native American (<1%) students. The age range of the respondents was 18-24 years. The semester-hours-completed mean was 51.00. The grade-point-average range was 1.80 to 4.00. Summary statistics for the sample are provided in Table 2.

Table 3 presents a summary of the sample by drinking type (from the MAST), negative drinking consequences (from the SDIS), and frequency of binge drinking. In regard to drinking type, generally there was a decrease over time for nonalcoholic and alcoholic drinkers but an increase for problem drinkers. At posttest 37% of the sample was identified as problem or alcoholic drinkers, and at follow-up 39% of the sample was identified as problem or alcoholic drinkers. In regards to negative drinking consequences, generally there was a decrease over time for low consequences

but an increase in moderate consequences. At posttest 82% of the respondents were binge drinkers, and at follow-up 84% of the respondents were binge drinkers.

Table 2

Demographic Characteristics of the Sample

	Males	Females	Total
N	171	96	267
Treatment Method			
Alcohol Threat	53	32	85
General Alcohol	54	32	86
General Health	64	32	96
Ethnicity			
Caucasian	160	86	246
Hispanic American	5	10	15
Native American	1	0	1
Asian American	5	0	5
Semester Hours			
< 30	50	23	73
< 60	43	36	79
< 90	51	31	82
> 90	27	6	33
Age Mean	19.62	19.38	19.53
Grade Point Average Mean	2.97	3.27	3.07

In contrast, however, as shown in Table 4, the mean scores for drinking type (MAST) and binge drinking decreased from posttest to follow-up. There was a slight increase from posttest to follow-up in negative drinking consequences (SDIS).

Table 3

Summary of Sample by Drinking Type, Negative Drinking
Consequences, and Frequency of Binge Drinking

	Posttest	Follow-up
DRINKING TYPE		
Nonalcoholic		
Male	108	105
Female	62	57
Total	170	162
Problem drinker		
Male	42	52
Female	24	28
Total	66	80
Alcoholic		
Male	21	14
Female	10	11
Total	31	25
NEGATIVE CONSEQUENCES		
Low		
Male	109	103
Female	53	50
Total	162	153
Moderate		
Male	61	66
Female	43	46
Total	104	112
High		
Male	1	2
Female	0	0
Total	1	2
BINGE FREQUENCY		
Male	139	149
Female	81	75
Total	220	224

Table 4

Mean Scores for Drinking Type, Negative Drinking
Consequences, and Frequency of Binge Drinking by Gender

	Posttest	Follow-up
Drinking Type (MAST)		
Male	4.45	4.15
Female	4.71	4.45
Total	4.54	4.26
Consequences (SDIS)		
Male	18.00	19.46
Female	21.00	20.82
Total	19.08	19.95
Binge		
Male	1.19	1.13
Female	1.16	1.22
Total	1.18	1.16

The means, standard deviations, and ranges of scores for the three dependent variables are presented in Table 5. The mean scores for perceived threat and perceived benefit increased during the time period from 28.43 to 29.43 and from 109.45 to 109.55, respectively. In contrast, the perceived barrier mean scores decreased during that same time period from 78.96 to 78.87. Inspection of the ranges for each dependent variable revealed that for perceived barriers the range increased by 73 between posttest and follow-up.

Table 5

Time of Assessment Means, Standard Deviations, and Ranges of
Scores for the Health Belief Questionnaire Subscales

	Posttest	Follow-up
Perceived Threat		
Mean	28.43	29.68
SD	7.00	8.62
Range	33.00	83.00
Perceived Benefit		
Mean	109.45	109.55
SD	15.80	13.17
Range	122.00	87.00
Perceived Barrier		
Mean	78.96	78.87
SD	11.98	13.35
Range	55.00	128.00

Intercorrelations among the three dependent variables
were calculated and are presented in Table 6. Statistically
significant, high positive correlations were found for the
three dependent variables over time of assessment. There was
a significant negative correlation between perceived threat
at posttest with perceived barrier at both times of
assessment. One unexpected finding was the significant
correlation between perceived benefit at posttest and
follow-up with perceived barrier at posttest.

Table 6

Intercorrelations Among the Dependent Variables and Time of
Assessment

Variables	1	2	3	4	5	6
1. Perceived Threat Posttest	–	.60*	–.00	–.11	–.08	–.15**
2. Perceived Threat Follow-up		–	.05	–.01	–.02	–.08
3. Perceived Benefit Posttest			–	.50*	.37*	.23*
4. Perceived Benefit Follow-up				–	.19**	.22**
5. Perceived Barrier Posttest					–	.44*
6. Perceived Barrier Follow-up						–

*p < .0001. **p < .05.

Analyses by Hypotheses

Hypotheses have been presented in regard to the relative
effectiveness of an alcohol-threat information message, a
general alcohol information message, and a general health
information message on (a) perceived threat, (b) perceived
benefit, and (c) perceived barriers for drinking college
students in predominately White, Greek-letter organizations.
The probability level for the rejection of an hypothesis was
p = .05 for all hypotheses tested.

Perceived Threat

Ho1: There is no significant difference in perceived
threat immediately following treatment based on type of
treatment information received.

Based on the data in Table 7, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no
significant main effect difference in mean perceived threat
immediately following treatment.

Table 7

Factorial Analysis of Variance Summary Table for Perceived
Threat at Posttest by Type of Treatment, Gender, Drinking
Type (MAST), and Negative Consequences (SDIS)

Source	df	SS	MS	F	Pr > F
Model	20	2930.18	146.51	3.57	.0001
Error	246	10087.29	741.01		
Corrected Total	266	13017.47			

Source	df	Type I SS	MS	F	Pr > F
Treatment (T)	2	67.45	33.72	0.82	.4406
Gender (G)	1	1206.60	1206.60	29.43	.0001*
Drink Type (D)	2	289.24	144.61	3.53	.0309**
Neg. Conseq(N)	2	114.59	57.29	1.40	.2492
T X G	2	108.64	54.32	1.32	.2678
T X D	4	110.40	27.60	0.67	.6113
T X N	2	259.79	129.90	3.17	.0438**
G X D	2	370.71	185.35	4.52	.0118**
G X N	1	392.16	392.16	9.56	.0022**
D X N	2	10.64	5.31	0.13	.8784

*p < .0001. **p < .05.

Ho1a: There is no significant difference by gender
in perceived threat based immediately following
treatment.

This hypothesis was rejected. According to the results
in Table 7, there was a significant main effect difference by
gender for perceived threat. Females scored significantly
higher on perceived threat than did males.

Ho1b: There is no significant difference by drinking
type in perceived threat immediately following
treatment.

Based on the data in Table 7, this hypothesis was
rejected. The results of the factorial ANOVA indicated a
significant main effect difference in mean perceived threat
immediately following treatment. The Duncan's Multiple Range
Test was used as a follow-up analysis to determine the nature
of the significant difference. Alcoholic drinkers' mean on
perceived threat was significantly higher than the means for
the problem drinkers and nonalcoholic drinkers.

Ho1c: There is no significant difference by negative
consequences in perceived threat immediately following
treatment.

Based on the data in Table 7, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no
significant main effect difference in mean perceived threat
immediately following treatment.

Ho1d: There are no significant perceived threat interactions among type of treatment received, gender, drinking type, or negative consequences immediately following treatment.

This hypothesis was rejected because significant interactions were found for treatment type by negative consequences level, gender and drinking type, and gender by negative consequences level.

Ho1e: There is no significant relationship between semester credit hours completed and perceived threat immediately following treatment.

This hypothesis was not rejected because the correlation was not significant ($r = .0.11$, $p = .07$).

Ho1f: There is no significant difference in the relationship between age and perceived threat immediately following treatment.

This hypothesis was not rejected because the correlation was not significant ($r = 0.11$, $p = .07$).

Ho2: There is no significant difference in perceived threat at follow-up based on type of treatment information received.

Based on the data in Table 8, this hypothesis was not rejected. The results of the factorial ANOVA indicated no significant main effect difference in mean perceived threat immediately following treatment.

Table 8

Factorial Analysis of Variance Summary Table for Perceived
Threat at Follow-up by Type of Treatment, Gender, Drinking
Type (MAST), and Negative Consequences (SDIS)

Source	df	SS	MS	F	Pr > F
Model	20	4746.08	226.00	3.68	.0001
Error	246	15028.22	61.34		
Corrected Total	266	19774.30			

Source	df	Type I SS	MS	F	Pr > F
Treatment (T)	2	18.88	9.44	0.15	.8575
Gender (G)	1	3795.27	3795.27	61.87	.0001*
Drink Type (D)	2	138.23	69.12	1.13	.3258
Neg. Conseq(N)	2	28.89	14.45	0.24	.7903
T X G	2	60.83	30.42	0.50	.6097
T X D	4	231.91	57.98	0.95	.4384
T X N	2	132.68	44.23	0.27	.5403
G X D	2	184.00	92.00	1.50	.2252
G X N	1	69.66	69.66	1.14	.2876
D X N	2	85.71	42.86	0.70	.4982

*$p < .0001$.

Ho2a: There is no significant difference by gender in

perceived threat at follow-up.

This hypothesis was rejected. According to the results

in Table 8, there was a significant main effect difference by

gender for perceived threat. Females scored significantly

higher on perceived threat than did males.

Ho2b: There is no significant difference by drinking

type in perceived threat at follow-up.

Based on the data in Table 8, this hypothesis was not rejected. The results of the factorial ANOVA indicated no significant main effect difference in mean perceived threat immediately following treatment.

Ho2c: There is no significant difference by negative consequences in perceived threat at follow-up.

Based on the data in Table 8, this hypothesis was not rejected. The results of the factorial ANOVA indicated no significant main effect difference in mean perceived threat immediately following treatment.

Ho2d: There are no significant perceived threat interactions among type of treatment received, gender, drinking type, or negative consequences at follow-up.

This hypothesis was not rejected. The results of the factorial ANOVA indicated no significant interactions.

Ho2e: There is no significant relationship between semester credit hours completed and perceived threat at follow-up.

This hypothesis was not rejected because the correlation was not significant ($r = .08$, $p = .17$).

Ho2f: There is no significant difference in the relationship between age and perceived threat at follow-up.

This hypothesis was not rejected because the correlation was not significant ($r = .06$, $p = .34$).

Ho3: There is no difference in perceived threat between
posttest and follow-up.

This hypothesis was rejected. A correlated samples
t-test was used to determine the significance of the
difference in perceived threat at posttest and follow-up.
The means were significantly different (t = 2.78, p = .0059).

Perceived Benefit

Ho4: There is no significant difference in perceived
benefit immediately following treatment based on type of
treatment information received.

Based on the data in Table 9, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no
significant main effect difference in mean perceived benefit
immediately following treatment.

Ho4a: There is no significant difference by gender
in perceived benefit based immediately following
treatment.

This hypothesis was rejected. According to the results
in Table 9, there was a significant main effect difference by
gender for perceived benefit. Females scored significantly
higher on perceived benefit than did males.

Ho4b: There is no significant difference by drinking
type in perceived benefit immediately following
treatment.

Based on the data in Table 9, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no

significant main effect difference in mean perceived benefit immediately following treatment.

Table 9

Factorial Analysis of Variance Summary Table for Perceived Benefit at Posttest by Type of Treatment, Gender, Drinking Type (MAST), and Negative Consequences (SDIS)

Source	df	SS	MS	F	Pr > F
Model	20	8069.17	403.46	1.70	.0337
Error	246	58362.79	237.25		
Corrected Total	266	66431.96			

Source	df	Type I SS	MS	F	Pr > F
Treatment (T)	2	149.58	74.79	0.32	.7299
Gender (G)	1	3449.71	3449.71	14.54	.0002*
Drink Type (D)	2	298.60	149.30	0.63	.5338
Neg. Conseq(N)	2	1432.47	716.24	3.02	.0507
T X G	2	77.65	38.32	0.16	.8491
T X D	4	787.87	196.97	0.83	.5070
T X N	2	1050.88	525.44	2.21	.1114
G X D	2	227.86	113.93	0.48	.6192
G X N	1	201.39	201.39	0.85	.3578
D X N	2	393.15	196.58	0.83	.4379

*$p < .001$.

Ho4c: There is no significant difference by negative consequences in perceived benefit immediately following treatment.

Based on the data in Table 9, this hypothesis was not rejected. The results of the factorial ANOVA indicated no

significant main effect difference in mean perceived benefit immediately following treatment.

    Ho4d: There are no significant perceived benefit interactions among type of treatment received, gender, drinking type, or negative consequences immediately following treatment.

    This hypothesis was not rejected. The results of the factorial ANOVA indicated no significant interactions were found.

    Ho4e: There is no significant relationship between semester credit hours completed and perceived benefit immediately following treatment.

    This hypothesis was not rejected because the correlation was not significant ($r = .11$, $p = .08$).

    Ho4f: There is no significant difference in the relationship between age and perceived benefit immediately following treatment.

    This hypothesis was rejected because the correlation was significant ($r = .15$, $p = .02$).

    Ho5: There is no significant difference in perceived benefit at follow-up based on type of treatment information received.

    Based on the data in Table 10, this hypothesis was not rejected. The results of the factorial ANOVA indicated no significant main effect difference in mean perceived threat immediately following treatment.

Table 10

Factorial Analysis of Variance Summary Table for Perceived
Threat at Follow-up by Type of Treatment, Gender, Drinking
Type (MAST), and Negative Consequences (SDIS)

Source	df	SS	MS	F	Pr > F
Model	21	1809.13	86.15	0.48	.9765
Error	245	44325.03	180.92		
Corrected Total	266	46134.16			

Source	df	Type I SS	MS	F	Pr > F
Treatment (T)	2	41.24	20.62	0.11	.8923
Gender (G)	1	392.64	392.64	2.17	.1420
Drink Type (D)	2	22.26	11.13	0.06	.9403
Neg. Conseq(N)	2	99.27	49.64	0.27	.7603
T X G	2	285.73	142.87	0.79	.4551
T X D	4	234.14	58.54	0.32	.8620
T X N	3	484.18	161.39	0.89	.4458
G X D	2	85.44	42.72	0.24	.7899
G X N	1	92.74	92.74	0.51	.4747
D X N	2	71.48	35.74	0.20	.8209

Ho5a: There is no significant difference by gender in
perceived benefit at follow-up.

This hypothesis was not rejected. According to the
results in Table 10, there was no significant main effect
difference by gender for perceived benefit at follow-up.

Ho5b: There is no significant difference by drinking
type in perceived benefit at follow-up.

Based on the data in Table 10, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no

significant main effect difference in mean perceived benefit at follow-up.

Ho5c: There is no significant difference by negative consequences in perceived benefit at follow-up.

Based on the data in Table 10, this hypothesis was not rejected. The results of the factorial ANOVA indicated no significant main effect difference in mean perceived benefit at follow-up.

Ho5d: There are no significant perceived benefit interactions among type of treatment received, gender, drinking type, or negative consequences at follow-up.

This hypothesis was not rejected. The results of the factorial ANOVA indicated no significant interactions were found.

Ho5e: There is no significant relationship between semester credit hours completed and perceived benefit at follow-up.

This hypothesis was not rejected because the correlation was not significant ($r = -.003$, $p = .96$).

Ho5f: There is no significant difference in the relationship between age and perceived benefit at follow-up.

This hypothesis was not rejected because the correlation was not significant ($r = .05$, $p = .42$).

Ho6: There is no difference in perceived benefit
between posttest and follow-up.

This hypothesis was not rejected. A correlated samples
t-test was used to determine the significance of the
difference in perceived benefit at posttest and follow-up.
The means were not significantly different ($t = 0.11$, $p = .9102$).

Perceived Barrier

Ho7: There is no significant difference in perceived
barriers immediately following treatment based on type
of treatment information received.

Based on the data in Table 11, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no
significant main effect difference in mean perceived barrier
immediately following treatment.

Ho7a: There is no significant difference by gender
in perceived barrier based immediately following
treatment.

This hypothesis was not rejected. According to the
results in Table 11, there was not a significant main effect
difference by gender for perceived barrier.

Ho7b: There is no significant difference by drinking
type in perceived barrier immediately following
treatment.

Based on the data in Table 11, this hypothesis was not
rejected. The results of the factorial ANOVA indicated no

significant main effect difference in mean perceived barrier immediately following treatment.

Table 11

Factorial Analysis of Variance Summary Table for Perceived Barrier at Posttest by Type of Treatment, Gender, Drinking Type (MAST), and Negative Consequences (SDIS)

Source	df	SS	MS	F	Pr > F
Model	20	6240.17	312.00	2.49	.0010
Error	246	31963.45	129.93		
Corrected Total	171	38203.63			

Source	df	Type I SS	MS	F	Pr > F
Treatment (T)	2	645.94	322.97	2.49	.0854
Gender (G)	1	90.14	90.14	0.69	.4057
Drink Type (D)	2	324.17	162.09	1.25	.2890
Neg. Conseq(N)	2	2055.26	1027.63	7.91	.0005*
T X G	2	154.86	77.43	0.60	.5518
T X D	4	1242.89	310.72	2.39	.0514
T X N	2	272.96	136.48	1.05	.3514
G X D	2	1168.87	584.43	4.50	.0121
G X N	1	8.29	8.29	0.06	.8008
D X N	2	276.79	138.40	1.07	.3463

*p < .001.

Ho7c: There is no significant difference by negative consequences in perceived barrier immediately following treatment.

Based on the data in Table 11, this hypothesis was rejected. The results of the factorial ANOVA indicated a significant main effect difference in mean perceived barrier immediately following treatment. The Duncan's Multiple Range

Test was used as a follow-up analysis to determine the nature of the significant difference. It was found that the high negative consequences mean was significantly different from the low negative consequences mean and the moderate negative consequences mean.

Ho7d: There are no significant perceived barrier interactions among type of treatment received, gender, drinking type, or negative consequences immediately following treatment.

This hypothesis was not rejected because a significant interaction was found only for gender by drinking type.

Ho7e: There is no significant relationship between semester credit hours completed and perceived barrier immediately following treatment.

This hypothesis was rejected because the correlation was significant ($r = .12$, $p = .04$).

Ho7f: There is no significant difference in the relationship between age and perceived barrier immediately following treatment.

This hypothesis was rejected because the correlation was significant ($r = .16$, $p = .009$).

Ho8: There is no significant difference in perceived barrier at follow-up based on type of treatment information received.

Based on the data in Table 12, this hypothesis was not rejected. The results of the factorial ANOVA indicated no

significant main effect difference in mean perceived barrier immediately following treatment.

Ho8a: There is no significant difference by gender in perceived barrier at follow-up.

This hypothesis was not rejected. According to the results in Table 12, there was not a significant main effect difference by gender for perceived barrier.

Table 12

Factorial Analysis of Variance Summary Table for Perceived Barrier at Follow-up by Type of Treatment, Gender, Drinking Type (MAST), and Negative Consequences (SDIS)

Source	df	SS	MS	F	Pr > F
Model	21	6282.96	299.19	1.78	.0208
Error	245	41092.71	167.73		
Corrected Total	266	47375.67			

Source	df	Type I SS	MS	F	Pr > F
Treatment (T)	2	578.42	289.21	1.72	.1805
Gender (G)	1	3.36	3.36	0.02	.8875
Drink Type (D)	2	2469.08	1234.54	7.36	.0008*
Neg. Conseq(N)	2	180.29	90.15	0.54	.5849
T X G	2	170.51	85.26	0.51	.6021
T X D	4	503.64	125.91	0.75	.5584
T X N	2	56.43	18.81	0.11	.9529
G X D	2	62.50	31.25	0.19	.8301
G X N	1	1319.62	1319.62	7.87	.0054**
D X N	2	939.11	469.56	2.80	.0628

*$p < .001$. **$p < .05$.

Ho8b: There is no significant difference by drinking type in perceived barrier at follow-up.

Based on the data in Table 12, this hypothesis was rejected. The results of the factorial ANOVA indicated a significant main effect difference in mean perceived barrier at follow-up. The Duncan's Multiple Range Test was used as a follow-up analysis to determine the nature of the significant difference. It was found that the nonproblem drinkers' mean was significantly different from the alcoholic drinkers' mean and the problem drinkers' mean.

Ho8c: There is no significant difference by negative consequences in perceived barrier at follow-up.

Based on the data in Table 12, this hypothesis was not rejected. The results of the factorial ANOVA indicated no significant main effect difference in mean perceived barrier at follow-up.

Ho8d: There are no significant perceived barrier interactions among type of treatment received, gender, drinking type, or negative consequences at follow-up.

This hypothesis was not rejected because a significant interaction was found only for gender by negative consequences level.

Ho8e: There is no significant relationship between semester credit hours completed and perceived barrier at follow-up.

This hypothesis was not rejected because the correlation was not significant ($r = .04$, $p = .53$).

Ho8f: There is no significant difference between age and perceived barrier at follow-up.

This hypothesis was not rejected because the correlation was not significant (r = .04, p = .42).

Ho9: There is no difference in perceived barrier between posttest and follow-up.

This hypothesis was not rejected. A correlated samples t-test was used to determine the significance of the difference in perceived barrier at posttest and follow-up. The means were not significantly different (t = -0.11, p = .9131).

Ho10: There is no significant association between drinking type and negative drinking consequences scale immediately following treatment.

This hypothesis was rejected because there was a significant association between drinking type and negative drinking consequences. The 3 x 3 chi square (χ^2 = 83.00, df=5) was statistically significant.

Ho11: There is no significant association between drinking type and negative drinking consequences scale at follow-up.

This hypothesis was rejected because there was a significant association between drinking type and negative drinking consequences. The 3 x 3 chi square (χ^2 = 70.28, df=5) was statistically significant.

Ho12: There is no significant association between drinking type and binge drinker classification immediately following treatment.

This hypothesis was rejected because there was a significant association between drinking type and binge drinking classification. The 3 x 2 chi square (χ^2 = 16.33, df=4) was statistically significant.

Ho13: There is no significant association between drinking type and binge drinker classification at follow-up.

This hypothesis was rejected because there was a significant association between drinking type and binge drinking classification. The 3 x 2 chi square (χ^2 = 19.36, df=4) was significant.

<u>Interviews</u>

Interviews were conducted with 48 students from each of the treatment conditions. Usable tape recordings were obtained from 20 males and 21 females; six tapes were inaudible and one person refused. Fifteen of the respondents had received the alcohol-threat information; 13 had received the general alcohol information; and 13 had received the general health information. General response categories were created for each of the six interview questions. Graduate students were trained to conduct the interviews.

<u>Question one</u>. Do you think drinking is a serious health problem for college students?

Possible response categories included (a) no threat, (b) little threat, (c) moderate threat, (d) serious threat, and (e) an unclassified response.

Alcohol-threat information respondents. Seven of the 15 students interviewed indicated that drinking was a serious problem for college students; one said it was a moderate threat; three said little threat; and four said drinking was no threat.

General alcohol information respondents. A mixed response was indicated from the 13 students interviewed. Two students indicated a serious threat, and one stated, "There was nothing else to do." Three students reported that drinking was a moderate threat; another three said it was of little threat; and five said it was no threat.

General health information respondents. Five of the 13 students interviewed indicated that drinking was a serious threat; five indicated it was a moderate threat; one indicated it was a little threat; and one indicated it was no threat.

Question two. Do you think you know how to change or avoid having a drinking problem?

Possible response categories included (a) I know how to change or avoid a problem, (b) I don't know how to avoid a problem, (c) not a problem, and (d) an unclassified response.

Alcohol-threat information respondents. Eleven of the 15 students interviewed indicated that they knew how to

change or avoid a problem; three indicated that drinking was not a problem for them; and one was unclassified and stated "self-discipline" was needed.

General alcohol information respondents. Eight of the 13 students interviewed indicated that they knew how to change or avoid a drinking problem; one did not know how to avoid a problem; and four indicated that they did not have a problem with drinking. Several respondents referred to the "ability to control their drinking."

General health information respondents. Eleven of the 13 students interviewed indicated that they knew how to change or avoid a drinking problem, and two did not know how to change or avoid.

Question three. Do you know how to change your current drinking behavior?

Possible response categories included (a) yes, and they are _____; (b) no, _____; and (c) an unclassified response.

Alcohol-threat information respondents. Thirteen of the 15 students interviewed indicated that they knew how to change their drinking behavior; one said that they did not know; and one response was unclassifiable.

General alcohol information respondents. Twelve of the 13 students interviewed indicated that they knew how to change their drinking behavior. One indicated that "they didn't have a problem."

General health information respondents. All 13 of the students interviewed indicated that they knew how to change their drinking behavior. Several respondents stated that "they would drink less."

Question four. Do you think the risks for college drinking are real?

Possible response categories included (a) the risks are real _____; (b) the risks are not real _____; and (c) an unclassified response.

Alcohol-threat information respondents. All 15 of the students interviewed indicated that they knew the risks for college drinking.

General alcohol information respondents. All 13 of the students interviewed indicated that they knew the risks for college drinking. Most of the respondents focused on drinking and driving as a major risk.

General health information respondents. All of the 13 students interviewed indicated that they knew the risks for college drinking.

Question five. In the last 6 weeks, did anything (cues) remind you of the risks of drinking?

Possible response categories included (a) yes, and they are _____; (b) no; and (c) an unclassified response.

Alcohol-threat information respondents. Nine of the 15 students interviewed indicated that something reminded them

of the risks of drinking since participating in the study;
five indicated that nothing reminded them; and one response
was unclassifiable.

General alcohol information respondents. Ten of the 13
students interviewed indicated that something reminded them
of the risks of drinking since participating in the study,
and three indicated that nothing reminded them. Most of
their indicators were in reference to recent fraternity
parties.

General health information respondents. Nine of the 13
students interviewed indicated that something reminded them
of the risks of drinking since participating in the study,
and four indicated that nothing reminded them.

Question six. Do you intend to reduce your risks of
drinking based on the information you received from this
study?

Possible response categories included (a) no, (b) maybe,
(c) yes, and (d) an unclassified response.

Alcohol-threat information respondents. Six of the 15
students interviewed indicated that based on the information
received, they were reducing their risks of drinking; five
said no "because they didn't drink much" or "knew their
risks"; one said maybe; and three responses were
unclassifiable. One respondent, who stated "no," indicated
that the "statistics were good information . . . amount of
rapes, accidents, and consequences." Another respondent

stated that "the questionnaire was very helpful in reminding me of the amount of hangovers and drunk driving."

General alcohol information respondents. Three of the 13 students interviewed indicated that based on the information received, they were reducing their risks of drinking. One respondent, who responded "yes," indicated that he would slow down maybe, "but I didn't agree with some of the information and I'd heard it all before." Ten students indicated no "because they aren't big drinkers." Several comments indicated that "they did not consider themselves at risk."

General health information respondents. Four of the 13 students interviewed indicated that based on the information received that they were reducing their risks of drinking; eight indicated no "because I don't drink that much"; and one indicated maybe. One respondent, who responded "yes," stated that "after the information and survey we all talked about it and I realized it is more important to control myself." Another respondent, who indicated response "no," stated, "I don't drink a lot; the study just confirmed what I know and if I had a problem, I'm sure it would help me out."

CHAPTER V
DISCUSSION

Alcohol abuse continues to plague college campuses. A recent report documented an exceedingly high rate of binge drinking among college students and stated that "many fraternities and sororities are functional saloons" (Wechsler, 1995, p. 17). In response to problems such as this, the primary purpose of this study was to examine the impact of three methods of written alcohol information (alcohol threat, general alcohol information, and general health information) on health beliefs among drinking college students. Both quantitative and qualitative data collection methods were used to fulfill the purposes of this study.

The discussion following is focused on the hypotheses tested and the supportive information gathered from student interviews. Also discussed are the limitations of this study, implications, and recommendations for future research.

Limitations

The results of this study indicated incongruence with the Health Belief Model among drinking college students. The results obtained may be due partially to design and implementation limitations within the study. For example, it is possible that drinking college students have received so

much information pertaining to alcohol and health information that further information produced no substantial effects. However, previous studies have found significant effects from similar interventions. Therefore, it is unlikely that "information overload" was a significant factor in the results found.

Another consideration is the instruments used to measure health belief changes. The Health Belief Model has been criticized for lack of standardized instruments (Rosenstock, 1990), and Stiles (1987) stated that the accuracy of HBM instruments is still in its infancy. However, the instruments used were the best available and had sufficient psychometric quality for research purposes. Therefore, the results are likely more a function of actual beliefs than of instrumentation shortcomings.

Limitations related to self-report survey research were discussed in a previous section. Respondents may have been sensitized to the questionnaires and, from the completion of the informed consent form, been particularly aware of their participation in a research project. However, use of informed consent procedures is a necessary component of this type of research, is common in such research, and should not have influenced the results substantially.

<u>Conclusions</u>

Analyses of the data yielded mixed results, confirming some previous research and contradicting other research. In

general, written information had no substantial effects on the three dimensions of the Health Belief Model. However, the results were consonant with alcohol use research suggesting the "closing" of gender differences.

Perceived Threat

According to the results of the data analyses, the treatment methods did not have a statistically significant effect on perceived threat between immediately following treatment and follow-up, thus questioning a significant premise from the Health Belief Model, specifically, that drinking college students should consider alcohol abuse a serious health threat. Weinstein (1982) stated that college students have unrealistic optimism which reduces motivation to take precautions. However, it also appears unrealistic and ineffective to focus on providing information on the seriousness of health issues because it apparently has little effect on their belief systems. Interestingly, the interview data gathered suggested that those respondents who participated in the alcohol threat information session considered alcohol abuse a more serious health threat than those who participated in the two other treatment methods.

Although there were no significant differences across treatment methods, there was a significant gender difference for perceived threat immediately after treatment and at follow-up. Females indicated a greater perception of susceptibility to future illness or disease. This is a

relatively unique finding because rarely has the Health Belief Model been examined in regard to gender differences. Additional supportive evidence for gender difference was found in the significant interactions among gender, drinking type, and negative consequences type. Female mean scores were significantly higher than male mean scores on drinking type and negative consequences type. However, no gender differences were found among the mean scores for drinking type, negative consequences type, or binge drinking. In general, these results support research claims that the gender gap has been reduced or is closing.

A significant difference was found for drinking type on perceived threat immediately following treatment; the alcoholic drinkers' mean score was significantly higher than the problem drinkers' and nonalcoholic drinkers' mean scores. This result is perplexing because health belief research would predict an opposite effect, that is, nonalcoholic drinkers having a higher perceived threat. Drinking college students who are alcoholic may not have had the capability or the ability to perceive their behavior as problematic because they perceived no threat.

Although there was no significant main effect difference for treatment methods, there was a significant interaction between treatment method and negative consequences type immediately following treatment. Across the three treatments, the negative consequences type group mean was the

lowest. These results also were unexpected; the low negative consequences group should have had higher means than the moderate and high negative consequences groups. However, this result supported similar previous research in which low-risk participants believed themselves to be less susceptible to dying. It also supported Stiles' (1987), Portnoy's (1980), and Weinstein's (1982) findings that low-risk participants believe themselves less susceptible to disease and accidents.

There was a significant difference in perceived threat between immediately following treatment and at follow-up. Interestingly, the students reported relatively low levels of perceived threat, with a mean of 28.43, immediately following treatment and of 29.68 at follow-up, from a possible score of 72 points. Supporting previous research (e.g., Janz & Becker, 1984; Maiman et al., 1977), it was expected that treatment method would increase participants' perception of threat.

Perceived Benefit

No significant differences in perceived benefit based on treatment method, drinking type, or negative consequences type were found immediately following treatment or at follow-up. Moreover, there was no overall significant difference in perceived benefit between immediately following treatment and at follow-up. The only significant main effect was a gender difference immediately following treatment.

Current gender research on college alcohol abuse was supported in that females perceived that they could change their health risks more easily than males. However, in general, these results are contrary to the Health Belief Model which would predict that exposure to health risk information would enhance perceptions of health risks. However, the results of this study supported Cioffi's (1980) and Stiles' (1987) research in which no effect on perceived benefit was found. Clearly, more research is needed to verify that perceived benefit is an acceptable tenet in the Health Belief Model.

Generally, the qualitative evidence was mixed in support of perception of change in health risks. Many respondents indicated that they did not have a problem with alcohol, and several respondents relied on an old drinking philosophy of "self-discipline" and "controlling one's drinking" as an appropriate way to solve a drinking health risk problem.

Perceived Barrier

No significant differences in perceived barrier based on treatment method or gender were found immediately after treatment or at follow-up. Moreover, there was no overall significant difference in perceived barrier between immediately following treatment and follow-up.

Immediately after treatment, there was a significant difference based on negative consequences type for perceived barrier. *Post hoc* analyses revealed that the high negative

consequences group was significantly different from the low and moderate negative consequences groups on perceived barrier. This result contradicted the expectation that higher scores on perceived barrier would lead to greater perception to perform a health behavior.

At follow-up, there was a significant difference in drinking type on perceived barrier. A *post hoc* analyses revealed that nonproblem drinkers were significantly different from problem and alcoholic drinkers. Nonproblem drinkers had a greater perception to perform positive health behaviors. This result suggests that alcohol education methods should focus attention on problem drinkers and alcoholics to encourage them to perform positive health behaviors.

Similarly to previous conclusions about gender, there was a significant interaction between gender and negative consequences type.

Two other factors, semester credit hours completed and age, were examined across the three health belief dimensions. Perceived barrier was the only health belief dimension having a significant relationship with them immediately after treatment. This supports research which indicates that drinking behavior increases with semester credit hours and age.

Interestingly, the qualitative interviews suggested that regardless of treatment method used, respondents knew how to

change their current drinking behavior and could identify
healthy ways to change their behavior. Certainly these
results were different than the corresponding quantitative
results. Janz and Becker (1984) suggested that the most
powerful dimension of the health belief model is perceived
barrier. Creating methods in which ability to perform a
recommended health behavior may be the strength to this
model; therefore, more research is needed on this dimension.

Drinking Behavior Assessments

Two other hypotheses were examined in regard to the
association among drinking behavior assessments. The first
hypothesis, at both times of assessment, revealed a
significant association between drinking type and behavioral
negative drinking consequences. These two assessments rarely
have been used together in research on drinking college
students. The results indicated that either one is useful in
assessing the behavioral risks due to college drinking.

The second hypothesis examined the association between
drinking type and binge drinking classification. Frequency
of binge drinking is a relatively new measure of heavy
drinking behavior. Bingeing rates vary dramatically from
campus to campus, with the lowest rate reported at 1% and the
highest rate at 70% of students (Wechsler, 1995). Wechsler
(1995) reported that sorority members who live in sorority
houses were an "astonishingly" 80% binge drinkers, whereas
fraternity house residents were 86% binge drinkers. The

comparative rates were 39% and 50%, respectively, for the
general drinking college population. This study found
results similar to Wechsler's, with 80% of the males and 85%
of the females indicating binge drinking. Also found was a
significant association, at both times of assessment, between
drinking type and binge drinking classification. This
association suggests that frequency of binge drinking is a
useful measure in assessing heavy drinking.

<u>Other Qualitative Responses</u>

The results from three other qualitative responses were
included in the data. One question was designed to determine
whether college students believed college drinking risks were
real. Interestingly, all 41 respondents stated that the
risks were real and were able to describe specific risks,
such as drunk driving and fighting. These responses
contradicted the quantitative results relative to perceived
threat.

Another question examined whether in the last 6 weeks
anything reminded the respondents of the risks of drinking.
This question was intended to examine the HBM model which
states a "cue to action" is thought to motivate concern to
change a health behavior. The qualitative results indicated
that 70% of the respondents identified a "cue." However, no
change in behavior was found among the responses to the last
question which asked if they intended to reduce their risks
of drinking due to the information (i.e., treatment)

received. Only 30% were going to change their drinking
habits based on the information received.

<div align="center">Implications</div>

In general, this study failed to find that written
information on alcohol threat, general alcohol information,
or general health information impacted the three dimensions
of the health belief model. Therefore, it can be concluded
that informational methods, in particularly written methods,
are not sufficient for changing health beliefs among college
students. Other researchers have suggested that changes
occur in knowledge, but not in beliefs and behavior. Even
when information is presented in a threatening manner (e.g.,
alcohol threat information), health beliefs and alcohol abuse
behaviors are not changed. This result is in conjunction
with inconclusive and sometimes contradictory research on
fear appeals research which suggests that informational
methods are not very effective (Witte, 1992).

The Health Belief Model was developed to focus on
explaining and predicting health behaviors. However, the
results from this study raise questions about the
appropriateness of using the HBM as a theoretical approach
for college alcohol education programs. The lack of
significant changes on the three HBM dimensions attests to
this conclusion. Therefore, other models should be developed
into a broader theoretical approach for such programs.

Researchers have examined gender differences among drinking college students and agreed that it is a significant characteristic related to college drinking. The results from this study supported the increasing evidence that gender differences are lessening. Therefore, programs intended to change college students' drinking behaviors need not be differentiated by gender, as has been the recommendation historically.

This study also again supported the overwhelming evidence of heavy drinking by college students in fraternities and sororities. The results from this study indicated a high level of binge drinking, at rates which matched those reported nationally (Wechsler, 1995). Over 35% of the students were identified as problem or alcoholic drinkers. This research supports previous research which has shown that Greek students drink at considerably higher than average rates. Therefore, college students in fraternities and sororities should remain focal groups for attention.

<u>Recommendations</u>

Completion of this study resulted in increased understanding of the difficulty in changing health beliefs and patterns of alcohol use among drinking college students. Students apparently are reluctant to view themselves as part of the problem and also unwilling to contribute to the solution.

Although this research did not support changes in health belief dimensions based on treatment, it did reveal heavy involvement with alcohol and negative behavioral consequences by Greek students. One response could be to advocate abolishment of Greek letter social organizations. However, colleges and universities have long supported Greek organizations and, in fact, share common values of preparing students for responsible citizenship. Therefore, it is unrealistic to support abolishment of them. An alternative is to suggest that Greek organizations need to engage in significant reform in relation to health.

From a programmatic standpoint, one important result was the lack of gender differences. In general, previous studies have reported that males drink more and experience greater negative consequences. However, more recent studies, including this research, have noted the lessening of gender differences. For campus alcohol education programs, ignoring this "gender closing" could be detrimental for females because major physiological differences exist. Therefore, it is imperative that campus alcohol education programs focus educational efforts on females.

Another implication based on the results is to focus efforts on high-risk problem drinkers and alcoholics. There is general agreement that colleges and universities should provide alcohol education programs because there is considerable evidence regarding drinking, frequent

intoxication, negative behavioral consequences, a get "drunk" mentality, and possible later life problems among drinking college students. However, despite these recognized problems, most campus alcohol education programs provide a "hodge podge" of activities. Based on this study, there is evidence that targeting problem drinkers and alcoholics could be an educational strategy. Therefore, student affairs practitioners need to focus on developing programs to reach this "at-risk" population.

Another recommendation based on the inconsistencies found between the quantitative and qualitative results is to explore further "method triangulation." Method triangulation is the use of multiple methods to study a single phenomenon (Stage & Russell, 1992). Health practitioners have endorsed multiple methods because health behaviors are complex (Steckler, 1989). Therefore, method triangulation could afford researchers and practitioners a clearer vision and understanding of the campus culture.

College alcohol education programs need significantly more research to develop an effective theoretical model that can be used to impact drinking college students. The HBM does not appear to be suitable as presently conceived in this study. It either needs to be modified substantially or alternative approaches developed. Simply, a new and more effective approach to modifying college students' drinking behavior is needed. Perhaps when such an approach is

actually found, colleges and universities can significantly enhance the health of college students.

Date

Dear Sorority/Fraternity President

I am an Assistant Dean for Student Services at the University of Florida. I am also a doctoral candidate in counselor education at the University, and as such I am contacting you to request your chapter's participation in my dissertation project, a study of informational methods regarding drinking attitudes and behaviors. Your chapter's participation in this research will assist me immensely.

I am requesting your chapter to participate in an alcohol education program including the administration of a questionnaire then, and then again 6 weeks later. The entire program will last 20 minutes and the completion of the questionnaire will require another 20 minutes. Therefore, the commitment requires about an hour for the entire research study. The questionnaires will be completed anonymously. Questionnaires will be identified by the first three digits of the subjects social security number and the last four digits of their phone number for matching purposes only.

If you are interested in participating, please contact me at 392-1261. After participating in the study, a letter acknowledging your chapter's participation will be forwarded to your national/international headquarters. Permission to receive credit towards completion of the University of Florida's Office for Student Services requirement for an alcohol education program is pending.

I will be contacting you in about a week to arrange for a program. I will be grateful for your participation.

Sincerely,

Elizabeth Broughton

INFORMED CONSENT FORM

I am a UF Assistant Dean for Student Services and also a doctoral candidate in the Department of Counselor Education. I am investigating the relationships between (alcohol) drinking patterns and self-perceptions of selected personal attributes among Greeks for my doctoral dissertation research. The information obtained from this study will be of assistance for UF Student Services programming and will help your chapter fulfill its requirement for annual participation in an alcohol education program. Therefore, your participation in this study will be appreciated, and useful in several contexts.

Your participation in this study is voluntary and you are free to withdraw from participation without penalty or repercussion at any time. Your participation will involve completion of several instruments and provision of some information about yourself and your behaviors. The entire task will take about 20 minutes. You also may be asked to participate later in a brief, 15-minute interview if you are randomly selected for that part of the study. The responses and information you provide will remain anonymous; only aggregate (group) data will be analyzed or used in the future.

No monetary or other individual compensation will provided for participation in this study. No psychological or other risks from participation are anticipated. If you have any questions about the study or participation in it, you may contact me, Elizabeth Broughton, at 392-1261 or at my office in P202 Peabody Hall during normal working hours.

_____

I have read and understand the procedure described above. I
have received a copy of this description. I freely consent
to participate. I understand that I am not required to
participate and that I may stop the participation at any
time.

Signed _____Date _____

I have defined and explained fully this research to the
participant whose signature appears above.

Elizabeth Broughton _____

Approved through use until January 1996

DEMOGRAPHIC INVENTORY

Please respond to the following by selecting the response
which best represents you. Respond to this questionnaire
only if you consider yourself a current drinker. Please
respond to all items.

   FORM NUMBER   _____

   First 3 digits of your social security no   ___   ___ ___

   Last 4 digits of your phone No ____   ____   ____   _____

1. Gender   (Please circle your response)

     A male
     B female

2. Age (years) _____

3. Racial/Ethnicity Identity

     A American Indian/Alaskan Native
     B Asian/Pacific Islander
     C Black (non-Hispanic)
     D Hispanic
     E White (non-Hispanic)
     F Other ethnicity not listed _____

4. Number of semester hours completed at the end of

     Fall 1994 _____.

Health Belief Questionnaire--Section I

Please answer all the questions. There are no right or wrong answers.
Circle the number that best expresses your response to the questions.

1. In the next 10 years, how much chance do you think there is that you could ever get the following conditions?	No chance	A little chance	A fair chance	A moderate chance	Quite a good chance	A very good chance
a. heart disease	1	2	3	4	5	6
b. a stroke	1	2	3	4	5	6
c. high blood pressure	1	2	3	4	5	6
d. lung cancer	1	2	3	4	5	6
e. alcoholism	1	2	3	4	5	6
f. serious emotional problems	1	2	3	4	5	6
g. pneumonia	1	2	3	4	5	6
h. cancer of the colon	1	2	3	4	5	6

For women only:

i. breast cancer	1	2	3	4	5	6
j. cervical cancer	1	2	3	4	5	6
2. In the next 10 years how much chance do you think there is that you could be involved in a motor vehicle accident?	1	2	3	4	5	6

	Not at all	Slightly	Fairly	Moderately	Quite Easily	Very Easily
3. How easily would you say that you get sick?	1	2	3	4	5	6
4. How easily would you say that you get involved in motor vehicle accidents?	1	2	3	4	5	6

5. Many people believe that there are things that they can do to prevent health problems.

How much do you think people can do for themselves to prevent the following health problems

	Nothing				A Great Deal	
a. heart disease	1	2	3	4	5	6
b. a stroke	1	2	3	4	5	6
c. high blood pressure	1	2	3	4	5	6
d. lung cancer	1	2	3	4	5	6
e. alcoholism	1	2	3	4	5	6
f. serious emotional problems	1	2	3	4	5	6
g. pneumonia	1	2	3	4	5	6
h. cancer of the colon	1	2	3	4	5	6

For women only:

i. breast cancer	1	2	3	4	5	6
j. cervical cancer	1	2	3	4	5	6
6. How much do you think people can do for themselves to prevent a motor vehicle accident?	1	2	3	4	5	6

7. How much do you believe
each of the following
actions can prevent   Would do nothing   Would completely
serious health problems   at all to prevent   prevent

a. regular check ups   1   2   3   4   5   6

b. having special
   medical tests done   1   2   3   4   5   6

c. keeping weight in
   the normal range   1   2   3   4   5   6

d. not drinking much   1   2   3   4   5   6

e. getting enough sleep
   and rest   1   2   3   4   5   6

f. not smoking   1   2   3   4   5   6

g. eating special food   1   2   3   4   5   6

h. taking vitamins   1   2   3   4   5   6

i. regular planned exercise   1   2   3   4   5   6

j. controlling anxiety
   and tension   1   2   3   4   5   6

8. How many people think that
there are things they can
do to prevent serious
motor vehicle accidents.

How much do you believe each
of the following actions
can prevent serious motor
vehicle accident injuries?

a. using a seat belt 75
   to 100% of this time   1   2   3   4   5   6

b. observing the speed limit 1   2   3   4   5   6

c. not driving after
   drinking   1   2   3   4   5   6

d. not driving when
   tired or drowsy   1   2   3   4   5   6

e. keeping the car in
   good condition   1   2   3   4   5   6

Health Beliefs Questionnaire--Section II

First, place a check mark in the space mark following the health
behaviors which <u>you believe that you will be able to perform</u> here at the
University of Florida. <u>Only for the behavior checked</u>, on the scale to
the right of the behavior, <u>circle the degree of certainty</u>, from 100%
certain (highly certain) to only 10% certain (highly uncertain) that you
can perform that behavior.

HEALTH BEHAVIOR   ABLE TO PERFORM   DEGREE OF CERTAINTY
                       (Highly uncertain)   (Highly certain)

1. Stay within 10 lbs.   _____   10 20 30 40 50 60 70 80 90 100
recommended wt.

2. Eat breakfast 6-7
days per week   _____   10 20 30 40 50 60 70 80 90 100

3. Avoid smoking
cigarettes   _____   10 20 30 40 50 60 70 80 90 100

4. Sleep 7-8 hours
per night   _____   10 20 30 40 50 60 70 80 90 100

5. Exercise at least
3 times per week   _____   10 20 30 40 50 60 70 80 90 100

6. Drink no more than
2 caffeinated drinks
per day   _____   10 20 30 40 50 60 70 80 90 100

7. Wear a seat belt
while driving or
or riding in a car   _____   10 20 30 40 50 60 70 80 90 100

8. Avoid driving or
riding with someone
under the influence
of alcohol   _____   10 20 30 40 50 60 70 80 90 100

9. Drink one alcoholic
drink or less per day   _____   10 20 30 40 50 60 70 80 90 100

10. Practice personal
tension control skills   _____   10 20 30 40 50 60 70 80 90 100

11. Avoid use of unneces-
sary or illegal drugs   _____   10 20 30 40 50 60 70 80 90 100

12. Do a Breast (F)
Testicular (M) self
exam monthly   _____   10 20 30 40 50 60 70 80 90 100

APPENDIX E
MICHIGAN ALCOHOL SCREENING TEST

MAST

Please take a moment to fill out this questionnaire form. This form will be returned to you after your meeting.

Circle "Yes" or "No" for each question.

1. Do you feel you are a normal drinker?   Yes   No
2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of that evening?   Yes   No
3. Do your friends or family ever worry or complain about your drinking?   Yes   No
4. Can you stop drinking without a struggle after one or two drinks?   Yes   No
5. Do you ever feel bad about your drinking?   Yes   No
6. Do friends or relatives think you are a normal drinker?   Yes   No
7. Do you ever try to limit your drinking to certain times of the day or to certain places?   Yes   No
8. Are you always able to stop drinking when you want to?   Yes   No
9. Have you ever attended a meeting of Alcoholics Anonymous?   Yes   No
10. Have you ever gotten into fights when drinking?   Yes   No
11. Has your drinking ever created problems with you and your friends or family?   Yes   No
12. Have your friends or any family member ever gone to anyone for help about your drinking?   Yes   No
13. Have you ever lost friends because of your drinking?   Yes   No
14. Have you ever gotten into trouble at school because of your drinking?   Yes   No
15. Have you ever lost a job or been suspended from school because of your drinking?   Yes   No
16. Have you ever neglected your obligations, your family, your work, or your schoolwork for two or more days in a row because you were drinking?   Yes   No
17. Do you ever drink before noon?   Yes   No
18. Have you ever been told you have liver trouble?   Yes   No
19. Have you ever had delirium tremens (DTs), severe shaking, heard voices, or seen things that were not there after heavy drinking?   Yes   No
20. Have you ever gone to anyone for help about your drinking?   Yes   No

21. Have you ever been in a hospital because of your
    drinking?   Yes No
22. Have you ever been a patient in a psychiatric hospital,
    or on a psychiatric ward in a general hospital,
    where drinking was part of the problem?   Yes No
23. Have you ever been seen at a psychiatric or mental
    health clinic, or gone to a doctor, social worker, or
    clergyman for help with an emotional problem in
    which drinking played a part?   Yes No
24. Have you ever been arrested, even for a few hours,
    because of drunk behavior?   Yes No
25. Have you ever been arrested for drunk driving or driving
    after drinking?   Yes No

STUDENT DRINKING INFORMATION SCALE-NEGATIVE CONSEQUENCES

Negative Consequences Scale

Indicate the extent to which you have experienced the following common results of drinking during the past year.

1. I have had a hangover.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

2. I gotten nauseated and vomited from drinking.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

3. I have driven a car after having had several drinks.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

4. I have driven a car when I knew that I had too much to drink.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

5. I have drunk while driving.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

6. I have cut a class after having several drinks.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

7. I have gone to class after having several drinks.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

8. I have missed a class because of a hangover.

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

9. I have been arrested for DWI (Driving While Intoxicated).

a. never b. once c. twice d. 3 times e. 4 times f. 5 times or more

10. I have been criticized by an associate because of drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

11. I have received a lower grade as a consequence of drinking too much.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

12. I have gotten into a fight after drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

13. I have thought on occasion that I might have a drinking problem.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

14. I have damaged property, pulled a fire alarm, or other such actions after drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

15. I have gotten into trouble with the school administration because of behavior resulting from drinking too much.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

16. I have had trouble with the law because of drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

17. I have lost a job because of drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

18. I was involved in some type of accident after drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

19. I did not remember what happened while I was drinking.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

20. I have done something after drinking which I later regretted.

a. never   b. once   c. twice   d. 3 times   e. 4 times   f. 5 times or more

BINGE DRINKING QUESTION

Circle the following answer:

Male

    In the previous two weeks, have you on one occasion had 5 or more drinks in a row?

                                 Yes   No

Female

    In the previous two weeks, have you on one occasion had 4 or more drinks in a row?

                                 Yes   No

FORM _____

1.   Do you think drinking is a serious health problem
        for college students? _____ no threat   _____
        little threat _____ moderate threat _____ serious
        threat
        _____ unclassified

2.   Do you think you know how to change or avoid having
        a drinking problem? ____ I know how to avoid a
        problem   ____ I don't know how to avoid a problem
        _____ not a problem _____unclassified

3.   Do you know how to change your current drinking
        behavior?
        _____ yes and they are
        _____
        _____ no
        _____
        _____ unclassified

4.   Do you think the risks for college drinking are
        real?
        _____ the risks are real
        _____
        _____ the risks are not real
        _____
        _____ unclassified

5.   In the last 6 weeks, did anything (cues) remind you
        of the risks of drinking?
        _____ yes, and they are
        _____
        _____ no
        _____ unclassified

6.   Do you intend to reduce your risks of drinking
        based on the information you received from this
        study?
        _____no _____maybe_____yes _____unclassified

APPENDIX I
TREATMENT FORM 1--GENERAL ALCOHOL INFORMATION

The most favorite drug of choice for Americans is alcohol. Although many people drink, they do not drive while intoxicated, nor do they develop a dependency on alcohol. Yet, it is a major public health concern. The history of alcohol in the U.S. is both turbulent and controversial, and this fact alone may explain the ambivalence surrounding alcohol in our society.

Alcohol strikes an emotional charge in many of us. We may be defensive if our own drinking is discussed, yet perfectly willing to condemn or restrict consumption by others. Our discomfort with alcohol causes ambivalence, misinformation, and strong emotions about its use.

Alcoholic beverages contain ethyl alcohol, or ethanol, a simple molecule. There are three types of alcoholic beverages: beer, wine and distilled spirits. Beer and wine are products of fermentation and distilled spirits, such as, whiskey, gin or vodka, are products of distillation. The proof number is twice the percentage of alcohol. In other words, 86 proof vodka contains 43% of alcohol.

Wine is generally served in 5-ounce glass, beer in 12-ounce cans or glasses, and distilled spirits are usually measured in 1 1/2-ounce jiggers. Therefore, 5 ounces of wine (10% alcohol by volume), a can of beer (4% alcohol), and 1 1/2 ounce of 80 proof (40% of alcohol) distilled spirit contains about 1/2 ounce absolute alcohol.

When you drink alcohol, your mouth absorbs a minuscule amount of alcohol. The rest travels to the stomach, where a small amount is absorbed into the bloodstream. Most of the remaining alcohol usually continues on into the small intestine; however, the rate at which this occurs depends on the concentration of alcohol and whether there is food in the stomach. If the stomach is empty, some alcohol moves directly into the small intestine in about 5 minutes. If there is food in the stomach, the process is slowed. From the small intestine, alcohol is rapidly absorbed into the bloodstream. As alcohol circulates throughout the body, it reaches the brain and the drinker begins to feel its effects.

The liver metabolizes 90% of the alcohol. The other 10% escapes through the breath, skin and the kidneys. A key factor in this process is that the liver can only oxidize one-quarter of absolute alcohol per hour. The rest continues to circulate throughout the body. In other words, the body is able to eliminate approximately half the alcohol in a drink in 1 hour and the total alcohol in one drink in 2 hours.

Several factors which play a major role in how alcohol will affect you are attitude and expectations, the quantity and beverage consumed, time frame of drinking, your body weight, the food in your stomach, your prior drinking experience, and gender.

With gender, females have a higher proportion of body fat and a lower percentage of water than males. Since alcohol is soluble in water but not fat, assuming the same amount of alcohol consumed, the concentration of alcohol in the blood of a male and female of the same weight would be higher in the female. In other words, the female will feel the effects of alcohol more, the male less.

Your attitude prior to drinking is important. If you are unhappy and tense, you may down a drink and quickly follow it with another. You may use alcohol to cope with anxiety and inadvertently drink to excess. And in reverse, if you are extremely happy, you may pay little attention to the amount of alcohol consumed and end up intoxicated.

Your expectations regarding alcohol also are important. If you believe alcohol will make you happy--indeed the first drink or two might fulfill that expectation. However, if you are sad, down, angry or depressed, the alcohol consumed may heighten these feelings or make them more pronounced.

A critical factor often overlooked is the time frame of consumption. If you have one drink of alcohol over a two-hour period, then your blood alcohol concentration (BAC) will most likely never register more than 0.01%. (BAC relates the milligram unit weight of alcohol to 100 units of blood and is usually expressed as a percentage. Therefore, a BAC of 0.03% means 30 milligrams of alcohol per 100 milliliters of blood). If you down one drink in a swallow, your BAC would measure 0.03% within 20 to 30 minutes. The BAC difference becomes more dramatic with larger quantities of alcohol. If you consume four drinks over a 6-to-8 hour time frame, you would probably not register a BAC higher than 0.03% at any time. But if you had the same four drinks in an hour, you would have a BAC of 0.12%, which is well above the 0.08% legal limit in Florida.

Food in the stomach, especially fatty foods and dairy, slows the absorption of alcohol. Food in the stomach does not protect you from getting intoxicated, it merely slows the effects of alcohol. As a "food" item, alcohol has several unusual characteristics. Alcohol requires no digestion and is absorbed unchanged into the bloodstream. As calories, alcohol contains them, but the calories are not stored or used later. You might believe then that alcohol consumption effects the system so that other calories are not burned up.

The presence of alcohol in the body affects the brain the most, impairing its ability to work. Alcohol's effects on the brain, though not fully understood, are quite complex. First, it impairs your judgment, then decision-making ability, and then motor functions. A specific amount of alcohol affects each individual differently.

At very low doses (one drink), alcohol acts as a stimulant, although it is a depressant. It relaxes you, provides a slight feeling of exhilaration, and lowers your inhibitions. With two drinks, your judgment is impaired, slower reaction time and poor muscle control is experienced.

Alcohol depresses your control systems with 3 drinks. In fact, visible intoxication with slurred words and wobbly gait can be observed. With four drinks, blurred vision and unclear speech is noted. This is an average persons reaction to alcohol, as stated earlier people respond differently to alcohol. In fact, those who are little affected or able to tolerate alcohol's effects are more likely to assume they can drink more than they can. These individuals are at greater risk to develop severe problems and become alcoholics.

Serious medical problems exists with alcohol use: fetal alcohol syndrome; pancreatitis (inflammation of the pancreas); diseases of the digestive system including liver problems, acute and chronic gastritis, and peptic ulcers; heart and vascular problems, especially cardiomyopathy and high blood pressure; and injuries resulting from motor vehicle accidents and other accidents

Other physical consequences include blood abnormalities, such as red blood cells and decrease production of all types of blood cells, and muscular weakness and muscle cramping.

While many people believe that alcohol is a sexual stimulant, excessive use causes sexual dysfunction. Male impotence can be an occasional side effect of intoxication or it can be a regular occurrence. Chronic heavy drinking inflames the prostrate gland and also sedates the testicles, lowering sperm output and the male hormones in the blood.

The long-term effect of heavy drinking for men is the inability to perform sexually. Premature ejaculation and poor erection are also problems associated with chronic drinking. Less apparent is the long-term effects on females, with the exception of the effects of alcohol on the fetus. More study is needed for understanding the impact of drinking on female sexuality. It appears that women who are heavy drinkers experience sexual dysfunction, develop serious organ damage, and are prone to obstetrical and gynecological problems. Alcohol can decrease sexual drive in women.

About 5% of all alcoholics have peripheral neuropathy-- the deterioration of the peripheral nerves of the hands and feet. Somewhat less than 5% of chronic abusers have organic mental syndromes related to the toxic effects of alcohol or to vitamin deficiencies. Of those in nursing homes suffering from permanent organic mental syndromes, about 15-30% may be the result of alcohol use. Alcohol alters the stomach's acid secretions and irritates the stomach lining itself. In the intestine, alcohol acts as an irritant and impairs vitamin absorption. Pancreatitis produces symptoms such as abdominal pain and vomiting. About 75% of pancreatitis cases in the United States are caused by alcohol consumption.

The consumption of alcohol has sparked a debate as to whether or not there is a relationship of drinking to cancer. Although alcohol is not a carcinogen, some researchers claim that alcoholic beverages may effect the development of cancer. Certain types of cancers---of the mouth, pharynx, larynx and esophagus--are more frequently found in people with drinking problems. Traditionally, alcoholics have nutritional deficiencies, and studies show a high incidence of cancer in animals with such deficiencies.

Additionally, an alcohol-mediated immunodeficiency may reduce the body's ability to defend against disease. Alcohol may encourage the production of enzymes that activate precarcinogens to become carcinogenic compounds. Liver cancer often occurs in association with liver cirrhosis in alcoholics.

Although alcoholics are at higher risk for developing cancers due especially to the consumption of alcohol and tobacco, the issue of determining the relationship between drinking and cancer remains unresolved.

Phlebitis, varicose veins, and types of angina pectoris have all been linked to heavy consumption. Heavy drinkers are 300% more likely to die from strokes than people who abstain or who drink lightly. As with cancer, tobacco may play a role in the rate of strokes among heavy drinkers. Fatty liver, alcoholic hepatitis and liver cirrhosis

represent the range of liver damage resulting from alcohol. Approximately 11,000 deaths annually are caused by alcohol-related cirrhosis of the liver.

Liver cirrhosis is the severest form of liver disease. Although it occurs in a small percentage of people who are not alcoholic, it is most frequently connected to alcoholism and is one of the leading causes of death among alcoholics. The liver is very vulnerable to the toxic effects of alcohol. It metabolizes all alcohol and plays a primary role in eliminating the substance from the body. Chronic excessive drinking often kills the liver cells and causes the growth of fibrous tissue in the liver, called scarring.

Scarring inhibits the proper functioning of the liver, after the liver becomes scarred, harmful substances that would normally be removed by the liver continue to circulate in the bloodstream with toxic effects. The cirrhotic liver also cannot handle the normal blood flow, forcing the blood to seek alternate routes for its return to the heart. Characteristic signs of impaired liver function--such as jaundice, loss of appetite, abdominal pain, and weakness-- increase as liver cirrhosis progresses.

About 25-30% of all hospitalizations result from health problems related to alcohol consumption. Alcoholics require more medical and mental health services than nonalcoholics. Twenty to 30% of first admissions to state mental hospitals in the United States are diagnosed as alcoholics. Alcoholism ranks as the number three cause of death in America, following cancer and heart disease.

Mixing alcohol and drugs can have a potentiating or a synergistic effect when used in combination. Alcohol and tranquillizers have a potentiating effect on each other which means that the action of one drug is enhanced when it is used in combination with another. Another result is synergism which is mixing alcohol and other drugs that results in a total effect greater than the individual effects of each. For example, the action of alcohol and pentobarbital results in an effect greater than if the drugs were consumed individually. Another words, one plus one equals two. Dangerously, in some cases, alcohol and barbiturates has resulted in coma or death.

Although alcohol and narcotics, and other mood-altering drugs, taken in combination result in some of the most notorious drug interactions, drinking and using a variety of drugs that are medicinal--even considered benign--also produce adverse effects. The potential for bleeding in the intestinal tract is increased when alcohol is used with simple aspirin. Alcohol reduces the effectiveness of many

antibiotics. Even antihistamines sold over the counter, for
example, Benadryl taken with alcohol can make you quite
sleepy. Sometimes alcohol reduces the effects of a
medication. So given the potential for adverse effects, you
should check with your physician about possible interactions
with alcohol. Make sure you carefully read the labels and
pamphlets for over-the-counter medicines.

Today, approximately 7 million children under the age of
18 are affected by a parent's alcoholism, and an estimated
22 million adults grew up in an alcoholic home. It is
estimated that there are 10 million alcoholics in the United
States.

Treatment help for individuals suffering from alcoholism
is available. Various treatment assistance is found in
Employee Assistance Programs, family interventions, inpatient
and outpatient treatment programs and self-help groups.

(Milgram, 1990)

APPENDIX J
TREATMENT FORM 2--ALCOHOL THREAT INFORMATION

**Alcohol abuse is a serious problem, and a major
health and social issue on college campuses.** It has
been reported as the number one problem faced by college
presidents. Although drinking alcohol has long been a part
of the college experience, a rite of passage, its excessive
results for individuals are extremely damaging. For the past
20 years, the style of college student drinking has changed
from weekend drinking to "binge" drinking several nights a
week. A few decades ago, drugs were the dread of the college
years. Today, binge drinking has taken its place. In fact,
drinking in the college population continues to exceed the
level of drinking in the general population by 15-20%.
Moreover, while an increasing portion of the college
population abstains from drinking alcohol, students who drink
are drinking greater quantities and with greater frequency
than ever before, and doing it for the sole purpose of
getting drunk or "wasted."

Some statistics support the serious issue of college
drinking:

93% of college students report having consumed alcohol
sometime during their lifetime. 96% of these college
students drank in the last year, and of these four out of
five drank in the last month, despite the fact that almost
80% of college students are under the age and cannot drink
legally.

42% of all college students engaged in a bout of heavy
drinking in the last 2 weeks, while only 33% of their
noncollege counterparts did the same.

Among college women, the rates of binge drinking are
double those of their noncollege peers (17% versus 8%).

One in three college students drink to get drunk.

8% of college students drink an average of 16 or more
drinks per week.

3.8% of students admit to drinking daily.

The average college student imbibes 34 gallons of alcoholic beverages each year.

Estimates of alcoholism range from 10-15% of the college population.

Each year, students spend $5.5 billion on alcohol, more than they spend on soft drinks, tea, milk, juice, coffee and books combined.

More than one-third of college women reported drinking for the sole purpose of getting drunk in 1993, more than triple the 10% in 1977.

While only 38% of women reported binge drinking at least once in the last 2 weeks compared with 54% of men, this statistic may underestimate the problem for women. Women process alcohol differently than men. Women become more intoxicated after drinking smaller quantities than men because they have lower total body water to dilute the alcohol. Women become addicted sooner, and develop alcohol-related problems and die younger than men with similar drinking patterns.

Freshmen are more likely to drink, drink more and drink more often than seniors.

Besides drinking and intoxication which can develop into serious problems, alcohol abuse has more serious problems and sometimes deadly consequences.

60% of college women diagnosed with a sexually transmitted disease were drunk at the time of infection.

35-70% of college students reported engaging in some type of sexual activity primarily as a result of alcohol. For example, at Dartmouth, 46% of students admit that under the influence of alcohol, they have had sex they would not have engaged in if they were sober. Nearly 1 out of 5 students have abandoned safe-sex practices while under the influence of alcohol.

In the last 5 years, the number of emergency room admissions for alcohol poisoning in campus communities jumped 15%. At one institution, alcohol poisoning cases have doubled over the last decade.

240,000 to 360,000 of the nation's 12 million current undergraduates will ultimately die from alcohol causes.

Two-thirds of college student suicide victims had been drinking and were legally intoxicated at the time of death.

95% of violent crime on campus is alcohol-related.

80% of all vandalism on campus is alcohol-related.

Alcohol is implicated in as many as 41% of academic problems and 28% of all dropouts.

Health Consequences

The most serious and ultimate health consequence of alcohol abuse is death. And it all too often occurs. Alcohol-related automobile crashes are the most immediate death threat to the college student. Of the 20,000 deaths that will likely occur in this next year as a result of alcohol-related automobile crashes, college students will unfortunately be over-represented in involvement. For every fatality, there will be many more maiming and serious injuries. How many college students drive drunk? A poll reported in the Wall Street Journal (1983) indicated that two out of every three undergraduates admitted to driving while intoxicated. And driving while intoxicated is by no means the only dangerous driving practice related to alcohol. Most individuals, having consumed even a drink or two, may not be legally or practically drunk, but will likely have an impaired driving capability, slower reaction time, impaired perception, and poorer judgment. Another, but related, area of concern is pedestrian death or injury that may be alcohol related. Another cause of immediate death is the all-too-popular and frequent practice of "funneling" or drinking games--the rapid ingestion of alcohol.

Suicide is one of the leading causes of death among young men in the 15 to 34 year old age group. And 35% of those suicide victims had been drinking, two-thirds of those were legally intoxicated at the time of death. Sixty nine percent of drowning deaths are alcohol related. Several studies have noted that alcohol is related to between 17% and 53% of fatal falls. Shannon Gill was a 20-year-old sophomore at Cornell when she fell from a 2-inch wide, 27-foot high ledge she was trying to traverse on a fraternity house roof. Her blood alcohol content (BAC) was 0.17, almost twice the amount which legally defines intoxication in most states. She died of a ruptured aorta. Tom Allen of Rutgers was luckier when he vaulted a 4-foot wall while drinking at a football game. Unfortunately for him, there was nothing on the other side of the wall except steps 30 feet below. Although injured seriously, he luckily survived.

The impairment of judgment that accompanies alcohol use can manifest itself in seemingly innocuous ways and yet can have deadly consequences. A young freshman, fraternity rushee in Arkansas had been drinking on a fraternity hayride. He left the hay wagon to relieve himself and was killed by an oncoming vehicle. There was a lawsuit and the jury found the fraternity liable for 95% of the damages. And then there are the tragically dramatic occasions such as when an intoxicated student shoots and kills one of his fellow students. There is also the tragedy of college students who die as a result of fraternity or sorority hazing. Nine out of every 10 of these deaths are related to alcohol use.

Immediate alcohol-related death is actually a much lower risk than eventual alcohol-related death. Unless something very different occurs in higher education, between 240,000 and 360,000 of our current student body of 12 million college students will eventual die of alcohol-related causes. Cirrhosis of the liver is commonly known to be an unfortunate by-product of heavy drinking. Do you know that more of our current college students in America will die of cirrhosis of the liver than will ever get doctorates in Business, Management and Communications combined? But there are many other medical consequences including alcohol effects on the immune, endocrine and reproductive functions. Heavy alcohol consumption is also a well documented cause of neurological problems, including dementia, blackouts, seizures, hallucinations, and peripheral neuropathy.

Not all the health consequences of alcohol are negative. There is some evidence that alcohol, in small amounts, may offer some protection against cardiovascular problems. However, overall there are far more excess deaths caused by alcohol than prevented by it. And there are many other, much safer, ways to achieve the same (and actually much greater) protective benefits. The positive, protective factors are sometimes used in the drinking dialogue, especially by alcohol purveyors and marketers, as a rationale for drinking, and while no medical authorities recommend drinking alcohol as a general protective mechanism, it does complicate the picture.

Economic Consequences

Alcohol consumption, abuse, and its consequences have been estimated to cost our entire society $86 billion annually. This estimate is greater than the corresponding estimate of illicit drug use. With respect to the campus itself, the typical student will probably spend more money for alcoholic beverages than for textbooks.

Other economic costs are measured by the proportion of campus vandalism and theft that is attributed to alcohol abuse. Most studies report that 80% of all acts of vandalism are alcohol-related. In an incident in 1988 a fraternity member under the influence of alcohol set fire to the Lambda Chi Alpha fraternity house on the campus of Bucknell University causing $400,000 worth of damage.

Social Consequences

There are a number of social consequences of drinking alcohol on campus. Some consequences are positive. There is little doubt that alcohol is a part of most college culture and tradition. In a sense, alcohol is a "social lubricant" which gives students, faculty, and alumni an easy, traditional way of initiating conversations, bonding, and other forms of socialization. We have our drinking songs, our alcohol-related (sometimes dominated) events, and alcohol-related stories. For most students (as well as others), it is a lot easier to say to a friend, "Let's go to the Porpoise and have some drinks," than it is to say, "I'm worried about some personal problems, and I would like to share this with you and get some advice or sympathy," or "I'm feeling a little lonely and isolated, and I'd appreciate you spending some time with me." Male college students report that almost all of their bonding with other men occurred with alcoholic beverages, and drinking was the main purpose.

The process of forming social relationships with members of the opposite sex is also facilitated by drinking and the events that accompany it. Many students drink only in social situations. There are many female students who will never have a drink unless they are on a date or in the company of men. And many college men will drink in a co-ed social situation because they perceive a correlation between drinking and their prospects for social success. The relationship between drinking and social interactions is by no means limited to co-ed situations, but is a factor in the shaping of general interpersonal development. In a certain sense, many of us view this as the distinction between healthy and unhealthy drinking. The person who drinks alone is perhaps in trouble or seems to be. And in a perverse contrast with reality, those who drink in social situations are often erroneously believed to not be in trouble. Most college drinking is done in couples, or in small or large groups.

This socialization function of alcoholic beverages is a fundamental social benefit for which many will trade off the potential negative health and economic consequences. Imagine the findings that sociologists from Mars would report if they came to Earth and studied our college campuses. They

undoubtedly would write about the primitive belief and customs that this strange liquid was necessary to "bless" almost all events, social unions, and discussions. They would point to our "superstition" that alcohol was a necessary ingredient for much campus activity.

College students need to know that they and their peers are personally susceptible to alcohol abuse. These statistics demonstrate the seriousness of alcohol abuse among college students. Alcohol is a drug and a popular drug with college students. College students need to be aware of the risks of using this drug.

Binge drinking is reported to be widespread on college campuses. Almost half of all students are reported to be binge drinkers. The consequences of binge drinking pose serious risks for drinkers and for others in the college environment. Binge drinking has been associated with unplanned and unsafe sexual activity, physical and sexual assault, unintentional injuries, other criminal violations, interpersonal problems, physical and/or cognitive impairment and poor academic performance.

Increasingly, binge drinkers experience such problems that their lifestyle affects numerous other college students who are low binge drinkers or non-drinkers. Not only do binge drinkers place themselves at risk, but they create problems for their fellow students who are not binge drinkers. Fellow students report being affected by noise, interruptions with their studying, being pushed, hit, assaulted and experiencing an unwanted sexual advance. Binge drinking is a major health problem for all college students.

Students need to know that there are options available to them. Students can actively participate in prevention activities by keeping in mind--If a person is going to drive, they should not drink; if a person chooses to drink, they should set a limit of one drink per hour and an absolute maximum of three drinks for an entire drinking event.

Other available options include participating in active educational activities, learning more about the risks of alcohol, and utilizing campus resources if there is a problem.

In summary, college students who drink need to know that alcohol abuse is a serious social and health issue. Serious problems can develop, and sometimes there are deadly consequences. College students are susceptible to alcohol abuse and the resultant

**problems.   And students need to know that there are
preventable options and resources available to them.**

(Eigen, 1991; CASA, 1994)

.

TREATMENT FORM 3--GENERAL HEALTH INFORMATION

Health plays a vital role in achieving academic, social and personal goals during college. Good health promotes positive results. Poor health can be a major liability.

A college experience exposes a student to many different and unfamiliar situations. The vastness of a large campus may leave you alone and isolated. Academic and social stress may make you feel pressured and uncertain.

The following are some important health information concerning college students:

Burnout is considered one of the single most common reasons students report for leaving school.

Almost one-third of college students view themselves as having a weight problem. In fact, it is reported that many students gain 10-20 pounds during their first semester at college.

Recently, the U.S. Department of Health and Human Services reported that only 10 to 20% of U. S. adults (age 18-64) exercise enough to maintain healthy hearts.

A study indicated that 1 in 500 college students have contracted HIV.

Some studies report 20-25% of college students have drinking problems.

Over 25% of entering freshmen report vomiting to lose weight.

Every year, 100,000 young people in the United States between the ages of 15 through 24 attempt suicide, over 5,000 actually succeed. Of these 1,000 are college students.

Health and wellness is more than simply living free of disease. Developing true wellness is a state of living in which you create your potential. Signs of maximizing your potential are feeling good physically, having stable

emotions, liking yourself, and having positive and rewarding relationships with others. You construct positive ways to cope and handle stress. Your health is directly affected by how you live, work, relate, and believe.

   A lifestyle characterized by poor nutrition, fatigue, lack of physical exercise, overindulgence in alcohol and caffeine will inevitably weaken your immune system. This lifestyle could leave you vulnerable to illness. Unfortunately, this lifestyle is not so untypical for a college student. By learning to cope with physical and psychological changes, students play a significant role in making correct decisions when confronted with health-threatening situations.

   College students can make significant changes in maximizing healthy lifestyles. Major activities that promote personal health are as follows:

   keeping stress at a moderate level

   getting physical exercise regularly

   eating a nutritionally balanced diet

   moderating or eliminating consumption of alcohol and other drugs including caffeine and nicotine

   if you are sexually active, practice safe sex

   establishing goals for yourself and approach achieving them with a positive attitude.

   Current research continues to confirm a direct relationship between the amount of stress encountered in everyday life and sickness, premature aging, and poor performance in work, academics and athletics. Everywhere from college classrooms to corporate boardrooms, people discuss and complain about stress. According to several college studies, the sources of stress most frequently reported by college students are academic and social situations, environment and lifestyle.

<u>Academic and Social Situations</u>

   Separation from home and parents

   Rejection by sorority or fraternity

   Failure to earn the grade expected

Conflict with roommate

Victim of a theft, sexual assault/acquaintance rape

<div align="center">Environment</div>

High noise level

Overcrowded living area

Inadequate lighting for study area

<div align="center">Lifestyle</div>

Eating or sleeping disorder

Increased use of alcohol or other drugs

Weight gain

Increased dependence on caffeine

The examples above are negative stressors. Your body responds to positive as well as negative stressors. Positive stressors might include getting a high grade or meeting someone new. A crucial step in coping with stress is learning which stressors you can influence or control and which ones you cannot. For example, academic deadlines such as mid terms are beyond your control, but getting assignments completed on time is within your control.

Take a moment to....

Clench your fists and jaw. Close your eyes, wrinkle your eyebrows for thirty seconds.

Did you hold your breath? Did you feel tense?

Other stress reduction techniques include

1. Concentrate on one problem or project at a time.

2. Take life one day at a time.

3. Take time off from stress.

4. Spend time with healthy friends.

Another healthy activity involves physical exercise. Exercising regularly can help you embrace a more active lifestyle so that you can begin to feel better, physically and emotionally. The good news is that your regular, scheduled exercise need only be of "moderate intensity." For

example, a brisk walk of thirty to sixty minutes three to five times a week is a fitness standard that promotes health and decreases risk of disease.

Medical research indicates that a physically unfit individual is more prone to experience health problems than a fit person. If you are active and physically fit, you probably feel better, eat better, drink in moderation, sleep sounder, and generally have a positive disposition. Physical fitness increases our ability to overcome fatigue, cope effectively with stress, and "fight off" pesky colds, the flu and other potentially unhealthy conditions. In a college environment, wide selection of physical fitness opportunities exist. Many positive experiences are available on campus which include organized exercise classes, intramural sports, club activities and many community activities. The benefits of physical fitness for college students are as follows.

Health

increased efficiency and strength of heart, lungs, muscles

weight control

reduced fatigue and increased energy

stronger bones

improved posture

lower blood pressure

Self-esteem/Attitude

improved appearance, greater muscle tone and decrease in body fat

reduced fatigue and better sleep patterns

more positive mental outlook

less nervous behavior

Along with physical exercise, your nutrition affects every aspect of your life--appearance, energy, stamina, resistance to illness, mental outlook, stress level and even academic and social success.

Eating is a way to live and it is also a way to cope with stress. Eating healthfully does not mean feeling deprived. Healthful and delicious foods are abundant. Many health

organizations publish guidelines. Below are suggestions from the U.S. Department of Health and Human Services.

1. Eat a variety of foods

2. Maintain healthy weight

3. Choose a diet low in fat, saturated fat and cholesterol

4. Choose a diet with plenty of vegetables, fruits and grain products

5. Use sugars only in moderation

6. Use salt and sodium only in moderation

7. If you drink alcoholic beverages, do so in moderation

According to most studies, 85-95% of college students drink. Alcohol is the most prevalent drug on campus. In fact, in the last 10 years, there is considerable evidence indicating that students are drinking more heavily. Studies suggest 20-25% of college students have drinking problems.

College students learn about alcohol from many sources-- society including television and other mass media, your ethnic and community surroundings, family and friends. Alcohol is involved in many campus problems and injuries, property damage, unwanted pregnancies, auto accidents and not so infrequently death. Problems with alcohol also interfere with interpersonal relationships, good health, and academic performance.

Alcohol has major powerful effects that influences the way your body functions. There are physical effects, drinking and driving casualties, and academic problems. Some strategies to prevent alcohol problems follow:

1. Know your family history

2. Learn to drink in moderation

> set a limit
> don't drink on an empty stomach
> pace yourself
> don't drink and drive
> alternate a nonalcoholic drink with an alcoholic one

3. Responsible party hosting

Take a moment to...

Record everything you eat or drink for three consecutive days. Write entries after you eat, and include what your were doing and any companions. Also note your mood (happy, relaxed, lonely, bored, angry?).

Additionally, college is an excellent time to develop sound knowledge and values regarding sexuality. You have the opportunity in the college environment to develop relationships that have the potential of being life-long. These are years of great personal growth. So learn and experiment at your pace, not someone else's. Remember to practice safe sex. No one is immune to AIDS.

Although we are not free from our genetic predisposition or history of previous illnesses or injury, we can change our health to minimize our vulnerability. Perform self exams on a regular basis. Get medical screenings as appropriate (such as dental exams or Pap smears for women). Also to maintain wellness, you have to avoid injury. So when you play sports, use appropriate gear and avoid foolish risks. In cars, always use seat belts and never drive while under the influence of alcohol or drugs. In any situation requiring concentration, coordination or judgment, avoid mood altering substances.

Maintain your own responsible choices for good health. Believing in your ability to control your health has other important implications. Your success in making changes in your lifestyle, such as, losing weight or stopping smoking, is directly related to your belief that you can make those changes and that they will positively affect your health and well-being. Remember that campus resources or campus health services have a wide range of assistance available to you as you develop and maintain good health.

(Smith & Smith, 1988)

REFERENCES

Aizenman, M., & Kelley, G. (1988). The incidence of violence and acquaintance rape in dating relationships among college men and women. <u>Journal of College Student Development, 29,</u> 305-311.

Albert, W. G., & Simpson, R. I. (1985). Evaluating an educational program for the prevention of impaired driving among grade 11 students. <u>Journal of Drug Education, 15,</u> 5-71.

Amatetti, S. L. (1987). A prevention primer: Putting theory to work in the classroom. <u>Alcohol Health and Research World, 11,</u> 38-43.

Anderson, D. (1994). <u>College alcohol survey.</u> Fairfax VA: George Mason University.

Andrews, M. L. (1987). The knowledge, attitudes, and behavior concerning alcohol use of resident assistants and residence hall students. <u>Journal of Alcohol and Drug Education, 33,</u> 86-90.

Baer, J. S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. <u>Journal of Studies on Alcohol, 52,</u> 580-586.

Baesler, E. J., & Burgoon, J. K. (1994). The temporal effects of story and statistical evidence on belief change. <u>Communication Research, 21,</u> 582-602.

Bailey, S. L. (1992). Adolescents' multisubstance use patterns: The role of heavy alcohol and cigarette use. <u>American Journal of Public Health, 82,</u> 1220-1224.

Bandura, A. (1977). <u>Social learning theory.</u> Englewood Cliffs, NJ: Prentice Hall.

Bardsley, P. E., & Beckman, L. J. (1988). The Health Belief Model and entry into alcoholism treatment. <u>The International Journal of the Addictions, 23,</u> 19-28.

Beck, K. H., (1981). Driving while under the influence of alcohol: Relationship to attitudes and beliefs in a college population. <u>American Journal of Drug and Alcohol Abuse, 8,</u> 377-388.

Beck, K. H., & Frankel, A. (1981). A conceptualization of threat communication and protective health behavior. <u>Social Psychology Quarterly, 44,</u> 204-217.

Becker, M. H. (1974). The Health Belief Model and personal health behavior. <u>Health Education Monograph, 2,</u> 326-473.

Becker, M. H. (1990). Theoretical models of adherence and strategies for improving adherence. In S. A. Shumaker, E. B. Schron, & J. K. Ockena (Eds.), <u>The handbook of health behavior change</u> (pp. 5-43). New York: Springer Publishing, Inc.

Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P., & Drachman, R. H. (1977). The Health Belief Model and prediction of dietary compliance: A field experiment. <u>Journal of Health and Social Behavior, 18,</u> 348-366.

Berkowitz, A. D., & Perkins, H. W. (1986). Problem drinking among college students: A review of recent research. <u>Journal of American College Health, 35,</u> 21-28.

Berkowitz, A. D., & Perkins, H. W. (1987). Recent research on gender differences in collegiate alcohol use. <u>Journal of the American College Health, 36,</u> 123-129.

Biber, D. H., Hashway, R. N., & Annick, D. F. (1980). Drinking patterns of male and female collegians: Are the patterns converging? <u>Journal of College Student Personnel, 21,</u> 349-353.

Blane, H. T. (1976). Recent trends in alcohol education. <u>Health Education, 7,</u> 36-38.

Blane, H. (1984). Report by Ingalls Z. Campus programs called ineffective in ending student alcohol abuse. <u>Chronicle of Higher Education, 28(10),</u> 17.

Borges, N. J., & Hansen, S. L. (1993). Correlation between college students' driving offenses and their risks for alcohol problems. <u>Journal of the American College Health, 42,</u> 79-81.

Botvin, C. J. (1983). Prevention of adolescent substance abuse through the development of personal and social competence. In T. J. Glynn, C. G. Leukefeld, & J. P. Ludford (Eds.), Preventing adolescent drug abuse (NIDA Research Monograph 47, pp. 115-140). Rockville, MD: National Institute of Drug Abuse.

Boyer, E. L. (1987). College: The undergraduate experience in America. New York: Harper & Row, Inc.

Boyer, E. L. (1990). Campus life: In search of community. Lawrenceville, NJ: Princeton University Press.

Boynton, R. E. (1971). The first fifty years: A history of the American College Health Association. Journal of the American College Health Association, 19, 269-285.

Burrell, L. F. (1992). Student perceptions of alcohol consumption. Journal of Alcohol and Drug Education, 37, 107-113.

Chen, W., & Bosch, M. (1987). Comparison of drinking attitudes and behaviors between participating and non-participating students in a voluntary alcohol education program. Journal of Alcohol and Drug Education, 32, 7-13.

Cherry, A. L. (1987). Social bond theory and alcohol use among college students. Journal of College Student Personnel, 28, 128-135.

Cioffi, J. P. (1980). The effect of health status feedback on health beliefs: An inquiry into the prebehavioral outcomes of a Health Hazard Appraisal. Dissertation Abstracts International, 41, 2A-1251A. (University Microfilms No. 8015042)

Claydon P. D., & Johnson, M. E. (1983). Contemporary perspectives on alcohol abuse on the college campus. American Psychological Association (From Psychological Documents), 13, 26-54.

Commission on Substance Abuse at Colleges and Universities (CASA). (1994). Rethinking rites of passage: Substance abuse on America's campuses. New York: Columbia University.

Conyne, R. (1984). Primary prevention through a campus alcohol education project. The Personnel and Guidance Journal, 62, 524-528.

Dennison, D. (1977). The effects of selected field experiences upon the drinking behavior of university students. Journal of School Health, 47, 38-41.

Dennison, D., Prevat, T., & Affleck, M. (1977). Does alcohol instruction affect student drinking behavior? <u>Health Education, 8,</u> 28-30.

Denzin, N. K. (1978). <u>The research act: A theoretical introduction to sociological methods.</u> New York: McGraw-Hill.

Dilts, S. L., House, R. H., Jr., Arthur, W. R., Hurley, M. E. (1993). Incidence of alcohol abuse in the parents of medical students. <u>Journal of American College Health, 42,</u> 82-83.

Donovan, J. E., Jessor, R., & Jessor, S. L. (1983). Problem drinking in adolescence and young adulthood: A follow-up study. <u>Journal of Studies on Alcohol, 44,</u> 109-137.

Douglas, P. (1987). Bizz-Buzz, turtles, quarters, and one horse club. <u>Alcohol Health and Research World, 11,</u> 54-57.

Drug Free Schools and Communities Act Amendments of 1989, Pub. L. No. 101-226, §34, Part 86 (1990).

Eigen, L. D. (1991). <u>Alcohol practices, policies, and potentials of American colleges and universities</u> (Adm. 91-1842). Rockville, MD: U.S. Department of Health and Human Services.

Engs, R. C. (1977). Drinking patterns and drinking problems of students. <u>Journal of Studies on Alcohol, 38,</u> 2144-2156.

Engs, R. C., & Hanson, D. J. (1986). The drinking patterns and problems of college students: 1983. <u>Journal of Drug Education, 31,</u> 65-83.

Faulkner, K. K., Alcorn, J. D., & Garvin, R. B. (1989). Prediction of alcohol consumption among fraternity pledges. <u>Journal of Alcohol and Drug Education, 34,</u> 12-20.

Favazza, A. R., & Cannell, B. (1977). Screening for alcoholism among college students. <u>American Journal of Psychiatry, 134,</u> 1414-1416.

Favazza, A., & Pires, J. (1974). The Michigan Alcoholism Screening Test: Application in a general military hospital. <u>Quarterly Journal of Studies On Alcohol, 35,</u> 925-929.

Fillmore, K. M. (1974). Drinking and problem drinking in early adulthood and middle age. <u>Quarterly Journal of Studies on Alcohol, 35,</u> 819-840.

Flay, B. R., & Sobell, J. L. (1983). The role of mass media in preventing adolescent substance abuse. In T. J. Glynn, C. G. Leukefeld, & J. P. Ludford (Eds.), Preventing adolescent drug abuse (NIDA Research Monograph 47, pp. 5-35). Rockville, MD: National Institute of Drug Abuse.

Flynn, C. A., & Brown, W. E. (1991). The effects of a mandatory alcohol education program on college student problem drinkers. Journal of Alcohol and Drug Education, 37, 15-24.

Freshman dies after initiation rite. (1988, February 24). Chronicle of Higher Education, p. A2.

Friend, K. E., & Koushki, P. A. (1984). Student substance abuse: Stability and change across college years. International Journal of the Addictions, 19, 571-575.

Fritzen, R. D., & Mazer, G. E. (1975). The effects of fear appeal and communication upon attitudes toward alcohol consumption. Journal of Drug Education, 5, 171-181.

Gadaleto, A., & Anderson, D. (1982). Results of the 1979 and 1982 college alcohol survey (Unpublished report). Radford, VA: Radford University.

Gallagher, R. P., Harmon, W. E., & Ligenfleter, C. D. (1994). CSAOs' perceptions of the changing incidence of problematic college student behavior. NASPA Journal, 32, 37-45.

Garland, R. (1982). Greek drinking parties. History Today, 33, 18-21.

Gilchrist, L. D. (1994). Current knowledge in prevention of alcohol and other drug abuse. In G. M. Gonzalez & V. V. Clement (Eds.), Research and intervention (pp. 25-44). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Gonzalez, G. M. (1980). The effect of a model alcohol education module on college students' attitudes, knowledge and behavior related to alcohol use. Journal of Alcohol and Drug Education, 25, 1-12.

Gonzalez, G. M. (1982). Alcohol education can prevent problems: A summary of some unique research findings. Journal of Alcohol and Drug Education, 27(3), 2-12.

Gonzalez, G. M. (1984). The BACCHUS program guide: A how to manual for alcohol abuse prevention on campus. Gainesville: Campus Alcohol Information Center, University of Florida.

Gonzalez, G. M. (1986). Proactive efforts and selected alcohol education programs. In T. G. Goodale (Ed.), _Alcohol and the college student. New directions for student services_ (No. 35, pp. 17-33). San Francisco: Jossey-Bass, Inc.

Gonzalez, G. M. (1988). Theory and application of alcohol and drug education as a means of primary prevention on the college campus. In T. M. Rivinus (Ed.), _Alcoholism/chemical dependency and the college student_ (pp. 89-113). New York: The Haworth Press.

Gonzalez, G. M. (1989a). An integrated theoretical model for the prevention of alcohol and other drug-related problems on the college campus. _Journal of College Student Development, 36,_ 492-503.

Gonzalez, G. M. (1989b). Early onset of drinking as a predictor of alcohol consumption and alcohol-related problems in college. _Journal of Drug Education, 19,_ 225-230.

Gonzalez, G. (1994a). Can colleges reduce student drinking? _Planning for Higher Education, 22,_ 14-21.

Gonzalez, G. M. (1994b). Theories, dominant models, and the need for applied research. In G. M. Gonzalez & V. V. Clement (Eds.), _Research and intervention_ (pp. 3-24). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Goodale, T. G. (Ed.). (1986). _Alcohol and the college student. New directions for student services_ (No. 35, pp. 17-33). San Francisco: Jossey-Bass, Inc.

Goodstadt, M. (1978). Alcohol and drug education: Models and outcomes. _Health Education Monographs, 6,_ 263-279.

Goodstadt, M., & Caleekal-John, A. (1984). Alcohol education programs for university students: A review of their effectiveness. _The International Journal of Addictions, 19,_ 721-741.

Goodwin, L. (1989). Explaining alcohol consumption and related experiences among fraternity and sorority members. _Journal of College Student Development, 30,_ 448-458.

Goodwin, L. (1990). Social psychological bases for college consumption. _Journal of Alcohol and Drug Education, 36,_ 83-95.

Gusfield, J. R. (1961). The structural context of college drinking. Quarterly Journal of Studies on Alcohol, 22, 428-443.

Gyle, H. D., Keeling, R. P., Garcia-Tunon, M., Kilbourne, B. W., Narkunas, J. P., Ingram, F. P., Roger,s, M. F., & Curran, J. W. (1990). Prevalence of HIV among college and university students. New England Journal of Medicine, 323, 1538-1541.

Haefner, D. P., & Kirscht, J. P. (1970). Motivational and behavioral effects of modifying health beliefs. Public Health Reports, 85, 478-484.

Hanson, D. J. (1974). Trends in drinking and behaviors among college students. Journal of Alcohol and Drug Education, 19, 6-14.

Hanson, D. J. (1977). Trends in drinking attitudes and behaviors among college students. Journal of Alcohol and Drug Education, 22, 17-22.

Hanson, D. J., & Engs, R. C. (1986). College students' drinking problems: 1982-1985. Psychological Reports, 58, 276-278.

Harford, T. C, Wechsler, H., & Rohman, M. (1983). The structural context of college drinking. Journal of Studies on Alcohol, 44, 722-732.

Harrison, J. A., Mullen, P. D., & Green, L. W. (1992). A meta-analysis of studies of the Health Belief Model with adults. Health Education Research, 7, 107-116.

Hewitt, K. (1977). The whole college catalog about drinking. (DHEW Pub. No. ADM 77-361). Washington, DC: Public Documents, U.S. Government Printing Office.

Hewitt, D., & Nutter, R. W. (1979). A comparison of three drug information presentations. Journal of Drug Education, 19, 79-90.

Hingson, R., Mangione, T., Meyers, A., & Scotch, N. (1982). Seeking help for drinking problems. Journal of Studies on Alcohol, 43, 273-288.

Hirschorn, M. (1988, March 16). Behaviors of students in fraternities worsens on many campuses as membership soars. Chronicle of Higher Education, pp. A34-A36.

Homer, P. L., & Kahle, L. R. (1990). Source expertise, time of source identification, and involvement in Persuasion: An elaborative processing perspective. _Journal of Advertising, 19,_ 30-39.

Horowitz, H. L. (1987). _Campus life: Undergraduate cultures from the end of the 18th century to present._ New York: Alfred A. Knopf.

Huck, S. W., Cormier, W. H., & Bounds, W. G., Jr. (1974). _Reading statistics and research._ New York: Harper & Row.

Hughes, S. P., & Dodder, R. A. (1983). Alcohol-related problems and collegiate drinking patterns. _Journal of Youth and Adolescence, 12,_ 65-76.

Humphrey, J. A., Stephens, V., & Allen, D. F. (1983). Race, sex, marihuana use and alcohol intoxication in college students. _Journal of Studies on Alcohol, 44,_ 733-738.

Isaac, M., & Michael, W. B. (1982). _Handbook in research and evaluation._ San Diego, CA: EdITS.

Iverson, D. C. (1978). Utilizing a health behavior model to design drug education/prevention programs. _Journal of Drug Education, 8,_ 279-287.

Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. _Health Education Quarterly, 11,_ 1-47.

Jessor, R., & Jessor, S. L. (1976). Problem drinkers on campus. _Journal of Drug Education, 22,_ 24.

Johnson, E. M. (1992). Preventing alcohol abuse: A move toward a national agenda. In H. M. Wallace, K. B. Cole, G. S. Parcel, & B. P. Judith (Eds.). _Principles and practices of school health_ (Vol. I, pp. 154-167). Oakland, CA: Third Party Publishing Company.

Johnston, L. D., O'Malley, P. M., & Bachman, J.G. (1992). _Smoking, drinking, and illicit drug use among American secondary school students, college students, and young adults, 1975-1991. Vol II. College & Young Adults._ Rockville, MD: U.S. Department of Health and Human Services, National Institute of Drug Abuse.

Kegeles, S. (1980). The health belief model and personal health behavior. _Social Science Medicine, 146,_ 227-229.

Kinder, B. N., Pape, N. E., & Walfish, S. (1980). Drug and alcohol education programs: A review of outcome studies. International Journal of the Addictions, 15, 1035-1054.

Klein, H. (1989). Helping the college student problem drinker. Journal of College Student Development, 30, 323-331.

Kleinot, M. C., & Rogers, R. W. (1982). Identifying effective components of alcohol misuse prevention programs. Journal of Studies on Alcohol, 43, 802-811.

Kraft, D. (1977). College students and alcohol: The 50 + 12 project. Alcohol Health and Research World, 2, 10-14.

Kraft, D. P. (1979). Strategies for reducing drinking problems among youth: College Programs. In H. T. Blane & M. E. Chafetz (Eds.), Youth, alcohol, and social policy (pp. 189-202). New York: Plenum.

Kraft, D. P. (1988). The prevention and treatment of alcohol problems on a college campus. Journal of Alcohol and Drug Education, 34, 37-51.

Kuh, G. D., & Andreas, R. A. (1991). It's about time: Using qualitative method in student life studies. Journal of College Student Development, 32, 397-405.

Kuh, G. D., & Arnold, J. C. (1993). Liquid bonding: A cultural analysis of the role of alcohol in fraternity pledgeship. Journal of College Student Development, 34, 327-334.

Lettieri, D. J., Sayers, M., & Pearson, H. W. (Eds.). (1980). Theories on drug abuse. Rockville, MD: National Institute on Drug Abuse.

Lewis, J. M., Gossett, J. T., & Phillips, V. A. (1972). Evaluation of a drug prevention program. Hospital and Community Psychiatry, 23, 124-126.

Liljestrand, P. (1993). Quality in college student drinking research: Conceptual and methodological issues. Journal of Alcohol and Drug Education, 38, 1-36.

Maddux, J. E., & Rogers, R. W. (1980). Effects of source expertise, physical attractiveness, and supporting arguments on persuasion: A case of brains over beauty. Journal of Personality and Social Psychology, 39, 235-244.

Maiman, L. A., Becker, M. H., Kirscht, J. P., Haefner, D. P., & Drachman, R. H. (1977). Scales for measuring behavior model dimensions: A list of predictive value, internal consistency and relationships among beliefs. <u>Health Education Monographs, 5,</u> 215-230.

Makepeace, J. M. (1981). Courtship violence among college students. <u>Family Relations, 30,</u> 97-102.

Manning, D. T., Barenberg, N., Gallese, L., & Rice, J. C. (1989). College students' knowledge and health beliefs about AIDS: Implications for education and prevention. <u>Journal of American College Health, 37,</u> 254-259.

Martens, C. H., Ross, L. E., & Mundt, J. C. (1991). Young drivers' evaluation of driving impairment due to alcohol. <u>Accident Analysis and Prevention, 23,</u> 67-76.

Mathison, S. (1988). Why triangulate? <u>Educational Review, 17,</u> 13-17.

Matthews, W. J. (1984). Violence in college couples. <u>College Student Journal, 18,</u> 150-159.

McCarty, D., Poore, M., Mills, K. C., & Morrison, S. (1983). Direct mail techniques and the prevention of alcohol related problems among college students. <u>Journal of Studies on Alcohol, 44,</u> 162-170.

McGuire, W. J. (1970). Designing communications to change attitudes regarding drug abuse. In J. R. Wittenborn (Ed.), <u>Communication and drug abuse</u> (pp. 24-46). Springfield, IL: Charles C. Thomas.

Meilman, P. W. (1993). Alcohol-induced sexual behavior on campus. <u>Journal of American College Health, 42,</u> 27-30.

Meilman, P. W., Yanofsky, N. N., Gaylor, M. S., & Turco J. H. (1989). Visits to the college health service for alcohol-related injuries. <u>Journal of American College Health, 37,</u> 205-209.

Meilman, P. W., Stone, J. E., Gaylor, M. S., & Turco J. H. (1990). Alcohol consumption by college undergraduates: Current use and 10 year trends. <u>Journal of Studies on Alcohol, 51,</u> 389-395.

Midanik, L. (1982). The validity of self-reported alcohol consumption and alcohol problems: A literature review. <u>British Journal of Addictions, 77,</u> 357-382.

Milgram, G. G. (1990). The facts about drinking. Mount Vernon, NY: Consumers Report.

Miller, W. R. (1976). Alcoholism scales and objective assessment methods: A review. Psychological Bulletin. 83, 649-674.

Miller, R., & Marshall, J. (1987). Coercive sex on the university campus. Journal of College Student Personnel, 28, 38-47.

Mills, K. C., & McCarty, D. (1983). A data-based alcohol abuse prevention program in a university setting. Journal of Alcohol and Drug Education, 28, 15-27.

Mills, K. C., Pfaffenberger, B., & McCarty, D., (1981). Guidelines for alcohol abuse prevention on the college campus. Journal of Higher Education, 52, 400-414.

Moffat, M. (1989). Coming of age in New Jersey: College and American culture. New Brunswick, NJ: Rutgers University Press.

Moore, R. A. (1972). The diagnosis of alcoholism in a psychiatric hospital; A trend of the MAST. American Journal of Psychiatry, 128, 1565-1569.

Nathanson, C. A., & Becker, M. H. (1983). Contraceptive behavior among unmarried young women: A theoretical framework for research. Population and Environment, 6, 39-57.

National Institute on Alcohol Abuse and Alcoholism (NIAAA). (1977). Second special report to the U.S. Congress on Alcohol and Health (DHHS Publication No. ADM 77-1401). Washington, DC: U.S. Government Printing Office.

National Institute on Alcohol Abuse and Alcoholism (NIAAA). (1987). Sixth special report to the U.S. Congress on Alcohol and Health (DHHS Publication No. ADM 87-1519). Washington, DC: U.S. Government Printing Office.

National Institute on Alcohol Abuse and Alcoholism (NIAAA). (1988). Proceedings from the conference on alcohol policy initiatives (DHHS Publication No. ADM 88-1237). Washington, DC: U.S. Government Printing Office.

National Institute on Alcohol Abuse and Alcoholism (NIAAA). (1990). Seventh Special Report to the U.S. Congress on Alcohol and Health (DHHS Publication No. ADM 90-1656, xxi and 6). Washington, DC: U.S. Government Printing Office.

National Institute on Drug Abuse (NIDA). (1978). Research issues update, 1978 (DHEW Publication No. ADM 79-808). Washington, DC: U.S. Government Printing Office.

National Institute on Drug Abuse (NIDA). (1990, May). College student survey on drug use 1980-1989. NIDA Capsules (No. 16). Rockville, MD: National Institute on Drug Abuse.

Nirenberg, T. D., & Miller, P. M. (1984). History and overview of the prevention of alcohol abuse. In P. M. Miller & T. D. Nirenberg (Eds.), Prevention of alcohol abuse (pp. 284-313). New York: Plenum Press, Inc.

Novello, A. C. (1991). Put on the brakes. Spring Break Press Conference Statement, Washington, DC.

O'Hare, T. M. (1990). Drinking in college: Consumption patterns, problems, sex differences, and legal drinking age. Journal of Studies on Alcohol, 51, 536-541.

Palmer, C. J., Gehring, D. D., & Guthrie, V. L. (1992). Student knowledge of information mandated by the 1989 amendments to the Drug Free Schools and Communities Act. NASPA Journal, 30, 30-38.

Patton, M. J. (1989). Problems with and alternatives to the use of coding schemes in research on counseling. The Counseling Psychologist, 17, 490-506.

Patton, M. J. (1991). Qualitative research on college students: Philosophical and methodological comparisons with the quantitative approach. Journal of College Student Development, 32, 389-396.

Perkins, H. W. (1985). Religious traditions, parents, and peers as determinants of alcohol and drug use among college students. Review of Religious Research, 27, 15-31.

Perkins, H. W., & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. International Journal of Addictions, 21, 961-976.

Petrosa, R., & Jackson, K. (1991). Using the health belief model to predict safer sex intentions among adolescents. Health Education Quarterly, 18, 436-476.

Phillips, J. C., & Heesacker, M. (1992). College student admission of alcoholism and intention to change alcohol-related behavior. Journal of College Student Development, 33, 403-410.

Polick, J. M. (1982). The validity of self-reports in alcoholism research. Addictive Behaviors, 7, 123-132.

Portnoy, B. (1980). Effects of a controlled-usage alcohol education program based on the Health Belief Model. Journal of Drug Education, 10, 181-195.

Posavac, E. T. (1993). College students' view of excessive drinking and the university role. Journal of Drug Education, 23, 237-245.

Presley, C. A., & Meilman, P. W. (1992). Alcohol and drugs on American college campuses. Carbondale, IL: Southern Illinois University.

Presley, C. P., Meilman, P. W., & Lyerla, R. (1993). Alcohol and drugs on American college campuses: Use, consequences, and perceptions of the campus environment. Volume I: 1989-91. Carbondale: The CORE Institute, Southern Illinois University.

Prevention Pipeline. (1988). Bimonthly reports (DHHS Publication No. ADM 88-2012). Washington, DC: U.S. Government Printing Office.

Ratliff, K. G., & Burkhart, B. R. (1984). Sex differences in motivations for and effects of drinking among college students. Journal of Studies on Alcohol, 45, 26-32.

Ray, O., & Ksir, C. (1990). Drugs, society, and human behavior (5th ed.). St. Louis: Times Mirror/Mosby College Publishing.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. Journal of Psychology, 91, 93-114.

Rogers, R. W., & Mewborn, C. R. (1976). Fear appeals and attitude change: Effect of a threat's noxiousness, probability of occurrence, and the efficacy of coping response. Journal of Personality and Social Psychology, 34, 54-61.

Rosenstock, I. M. (1974). Historical origins of the health belief model. Health Education Monographs, 2, 328-353.

Rosenstock, I. M. (1990). The health belief model: Explaining health behavior through expectancies. In K. Galanz, F. Lewis, & B. K. Aimer (Eds.), Health behavior and health education: Theory, research and practice (pp. 39-62). San Francisco: Jossey-Bass.

Rozelle, G. R. (1980). Experiential and cognitive small groups approaches to alcohol education for college students. Journal of Alcohol and Drug Education, 26, 40-53.

Rozelle, G. R., & Gonzalez, G. (1979). A peer-facilitated course on alcohol abuse: An innovative approach to prevention on the college campuses. Journal of Alcohol and Drug Education, 25, 20-30.

Saltz, R., & Elandt, D. (1986). College student drinking studies, 1976-1985. Contemporary Drug Problems, 13, 117-159.

Sandeen, A., & Rhatigan, J. J. (1990). New pressures for social responsiveness and accountability. In M. J. Barr, M. L. Upcraft, and Ass. (Eds.), New frontiers for student affairs (pp. 48-114). Jossey-Bass: San Francisco.

Sandeen, C. A. (1988). Student affairs: Issues, problems and trends. Ann Arbor, MI: ERIC Counseling and Personnel Services Clearinghouse.

Sanford, N. (1967). Where colleges fail. San Francisco: Jossey-Bass.

Schlegel, R. P. (1977-78). The role of persuasive communications in drug dissuation. Journal of Drug Education, 7, 279-290.

Seay, T. A., & Beck, T. D. (1984). Alcoholism among college students. Journal of College Student Personnel, 25, 90-92.

Selzer, M. L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. American Journal of Psychiatry, 127, 1653-1658.

Selzer, M. L., Vinokur, A., & van Roijen, L. (1975). A self-administered Short Michigan Alcoholism Screening Test (SMAST). Journal of Studies on Alcohol, 36, 117-126.

Shore, E. R. (1983). Social ease in drinking situations among college students. International Journal of the Addictions, 18, 875-880.

Silber, T. J., Capon, M., & Kuperschmit, I. (1985). Administration of the Michigan Alcoholism Screening test (MAST) at a student health service. Journal of the American College Health, 33, 229-233.

Simon, K. J., & Das, A. K. (1984). An application of the Health Belief Model toward an educational diagnosis for VD education. Health Education Quarterly, 11, 405-418.

Sloane, D. C., & Sloane, B. (1986). Changing opportunities: An overview of the history of college health educators. Journal of the American College Health, 34, 271-273.

Smith, D. S., Collins, M., Kreisberg, J. P., Volpicelli, J. R., & Alterman, A. I. (1987). Screening for problem drinking in college freshmen. Journal of the American College Health, 36, 89-94.

Smith, S., & Smith, C. (1988). The college student's health guide. Los Altos, CA: Westchester Publishing Company.

Stage, F., & Russell, R. V. (1992). Using method triangulation in college student research. Journal of College Student Development, 33, 485-491.

Stainback, R. D., & Rogers, R. W. (1983). Identifying effective components of alcohol abuse prevention programs: Effects of fear appeals, message style, and source expertise. The International Journal of the Addictions, 18, 393-405.

Stainback, S. B., & Stainback, W. C. (1988). Understanding qualitative research. Dubuque, IA: Kendal/Hunt Publishing Company.

Steckler, A. (1989). The use of qualitative evaluation methods to test internal validity: An example in a work site health promotion program. Evaluation and the Health Professions, 12, 115-133.

Steckler, A., McLeroy, K. R., Goodman, R. M., Bird, S. T., & McCormick, L. (1992). Toward integrating qualitative and quantitative methods: An introduction. Health Education Quarterly, 19, 1-8.

Stiles, C. A. (1987). Impact of the health risk appraisal process on health behaviors and beliefs of college freshmen (Doctoral Dissertation, University of Florida, 1987). Dissertation Abstracts International, 49-06, A1381.

Stolberg, V. B. (1987). Examination of the alcohol knowledge-attitudes-behavior model with incoming college students. Journal of Alcohol and Drug Education, 32, 45-48.

Stone, G. L., & Archer, J. Jr., (1990). College and university counseling centers in the 1990s: Challenge and limits. The Counseling Psychologist, 18, 539-607.

Straus, R., & Bacon, S. E. (1953). Drinking in college. New Haven, CT: Yale University Press.

Swisher, J., & Crawford, J. (1971). An evaluation of a short-term drug education. The School Counselor, 18, 205-212.

Swisher, J. D., & Horman, R. E. (1970). Drug abuse prevention. Journal of College Student Personnel, 11, 337-341.

Swisher, J. D., Warner, R. W., Jr., & Herr, E. L. (1972). Experimental comparison of four approaches to drug abuse prevention among ninth and eleventh grades. Journal of Counseling Psychology, 19, 328-332.

Swisher, J. D., Warner, R. W., Spence, C. C., & Upcraft, M. L. (1973). Four approaches to drug abuse prevention among college students. Journal of College Student Personnel, 14, 231-235.

Tampke, D. R. (1990). Alcohol behavior, risk perception, and fraternity and sorority memberships. NASPA Journal, 28, 71-77.

Temple, M. (1986). Trends in collegiate drinking in California, 1979-1984. Journal of Studies on Alcohol, 47, 274-282.

Tinsely, D. J., & Irelan, T. M. (1989). Instruments used in college student affairs research: An analysis of the measurement base of a young profession. Journal of College Student Personnel, 30, 440-447.

Tobler, N. S. (1986). Meta-analysis of 143 adolescent drug prevention programs: Quantitative outcome results of program participants compared to a control or companion group. Journal of Drug Issues, 16, 537-567.

Two at Princeton sentenced to jail in initiation case. (1988, June 1). Chronicle of Higher Education, p. A2.

Tykocinski, O., Higgins, E. T., & Chaiken, S. (1994). Message framing, self-discrepancies, and yielding to persuasive messages: The motivational significance of psychological situations. Personality and Social Psychology Bulletin, 20, 107-115.

University of Florida. (1994). Fact book. Gainesville, FL: University of Florida, Academic Affairs.

University of Florida. (1994-95). Student guide. Gainesville, FL: University of Florida, Office for Student Services.

Upcraft, M. L. (1994). Response from a public university. In
G. M. Gonzalez & V. V. Clement (Eds.), Research and
intervention (pp. 111-117). Washington, DC: U.S. Department
of Education, Office of Educational Research and
Improvement.

Vaillant, A. A., & Vaillant, S. K. (1985). Evaluating
research in education and the behavioral sciences (3rd
ed.). Wayne,NJ: Avery Publishing Group.

Walfish, S., Wentz, D., Benzing, P., Brennan, F., & Champ, S.
(1981). Alcohol abuse on a college campus: A needs
assessment. Evaluation and Program Planning, 4, 163-168.

Wechsler, H. (1995). Binge drinking on American college
campuses: A new look at an old problem. Boston, MA: Harvard
University, Department of Health and Social Behavior.

Wechsler, H., Davenport, A., Dowdal, G., Moeykens, B., &
Castillo, S. (1994b). Health and behavioral consequences of
binge drinking in college. JAMA: Journal of the American
Medical Association 272, 1672-1677.

Wechsler, H., & Isaac, N. (1992). "Binge" drinkers at
Massachusetts colleges: Prevalence, drinking style, time
trends, and associated problems. JAMA: Journal of the
American Medical Association, 267, 2929-2931.

Wechsler, H., Isaac, N. E., Grodstein, F., & Sellers, D. E.
(1994a). Continuation and initiation of alcohol use from
the first to the second year of college. Journal of Studies
on Alcohol, 55, 41-45.

Wechsler, H., & McFadden, M. (1979). Drinking among college
students in New England: Extent, social correlates, and
consequences of alcohol use. Journal of Studies on Alcohol,
40, 969-996.

Wechsler, H., & Rohman, M. (1983). Extensive users of alcohol
among college students. Journal of Studies on Alcohol, 42,
149-155.

Weinstein, N. D. (1982). Unrealistic optimism about
susceptibility t health problems. Journal of Behavioral
Medicine, 5, 441-460.

Wheat, J. (1988, October 11). Alcohol No. 1 problem.
Gainesville Sun, p. 81.

Wilkerson, I. (1989, October 2). Black fraternities thrive,
often on adversity. New York Times National, pp.A1, B11.

Williams, F. G., & Knox, R. (1987). Alcohol abuse intervention in a university setting. _Journal of American College Health, 36,_ 97-102.

Williams, G. D., Stinson, F. S. Parker, D. A., Harford, T. C., & Noble, J. (1987). Demographic trends, alcohol abuse and alcoholism. _Alcohol Health and Research World, 11,_ 80-91.

Winston, R. B., Jr., & Saunders, S. A. (1987). The Greek experience: Friend or foe of student development? In R. B. Winston, Jr., W. R. Nettles III, & J. H. Opper, Jr. (Eds). _Fraternities and sororities on the contemporary college campus_ (New Directions for Student Services, No. 4, pp. 5-20). San Francisco: Jossey-Bass.

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. _Communication Monographs, 59,_ 329-349.

Zung, B. T., & Charalumpores, K. D. (1975). Item analysis of the Michigan Alcoholism Screening Test. _Journal of Studies on Alcohol, 36,_ 127-132.

BIOGRAPHICAL SKETCH

Born and raised in Morristown, New Jersey, Elizabeth Ann Broughton attended Rollins College in Winter Park, Florida, where she played varsity tennis and obtained a Bachelor of Arts degree in behavioral science and history in 1976. After graduation, she played professional tennis for 2 years and then coached the University of Florida's Women's Tennis Team until 1981.

Upon leaving coaching, she involved herself in pursuing the Master of Education and Specialist in Education degree in agency, correctional, and developmental counseling in the Department of Counselor Education at the University of Florida. Ms. Broughton was awarded her degrees in May of 1985. She also was accepted into the doctoral program in counselor education in the UF Department of Counselor Education during that year.

While enrolled in her graduate studies, she worked for 3 years as a graduate assistant at the University of Florida's Campus Alcohol and Drug Resource Center and in 1985 was hired as its director and as an assistant dean of student services. She subsequently received several major state and U.S. Department of Education grants. She has been involved
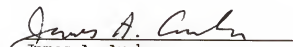
actively with professional organizations, conducted many presentations on alcohol and drug prevention in higher education, and coauthored several publications. She currently acts as an area consultant for the BACCHUS and GAMMA Peer Education Network and as a regional consultant for the U.S. Department of Education's Network of Colleges and Universities Committed to the Elimination of Drug and Alcohol Abuse.

Ms. Broughton's responsibilities involved as an assistant dean for student services include counseling, advising, and leadership development. She is advisor to several student organizations including alcohol and drug peer education organizations, Mortar Board National Honor Society, and Alpha Lambda Delta Freshman Honor Society. She received the 1994 Outstanding Professional of the Year Award from the Florida School of Addiction Studies and the 1995 Women of Achievement Award from the University of Florida's Women's Leadership Conference.
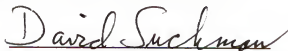
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Larry C. Loesch, Chair
Professor of Counselor
Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

James A. Archer
Professor of Counselor
Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.
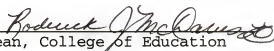
Phyllis M. Meek
Associate Professor of
Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

David I. Suchman
Professor of Psychology

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Education.

May, 1996

_____
Dean, College of Education

_____
Dean, Graduate School